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THE
VETERINARY BULLETIN

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August, 1955.

[No. 8

DISEASES CAUSED BY BACTERIA AND FUNGI

KLATT, C.-H. (1953). Om inverkan av sulfa-preparater och antibiotika på mastitstafylokokkerna. [**Sulphonamides and antibiotics in treatment of staphylococcal mastitis.**—*Nord. VetMed.* 5, 925-932. [In Swedish. English and German summaries.] 2245

Aureomycin was found to give better results than other antibiotics in the treatment of staphylococcal mastitis in cows, provided the dosage was sufficiently high (200 mg.) and repeated 2-3 times at 24-hour intervals. Penicillin was found to be active against staphylococci only during the stage of multiplication, and infected quarters therefore required 6 consecutive treatments at 24-hour intervals. Better results were often obtained with sulphonamides, and with di-propamidine-isothionate together with sulphathiazole.—I. MARTINI.

LOGVINOV, D. D. (1954). [**Treatment of acute mastitis by local anaesthesia of the mammary gland nerves.**]—*Veterinariya, Moscow.* 31, No. 9, pp. 50-52. [In Russian.] 2246

In the early serous and catarrhal stages of acute mastitis in cattle, the injection of 150-200 ml. of a 0.25-0.5% soln. procaine hydrochloride around the base of each affected quarter brought about improvement by, it was stated, increasing the circulation, lessening capillary permeability, and inhibiting the release of histamine. The treatment was ineffective in mastitis when pus formation and necrosis were present.—A. MAYR-HARTING.

RØMER, O. (1953). On the role of Ca, G and L streptococci in bovine mastitis.—*Proc. XVth Int. vet. Congr., Stockholm, 1953, Part I*, Vol. 2, pp. 841-845. Discussion: Part II, p. 348. [In English. French and German summaries.] 2247

In herds with mastitis of streptococcal origin infection was due to streptococci of Group Ca in 19.1% of cows in 17 herds, of Group G in 27.2% in 13 herds, and of Group L in 25.6% in 29 herds. In 11% of 246 herds infected with

Str. agalactiae comprising 4,542 cows, streptococci of Groups Ca, G and L could also be isolated. Infection with these streptococci involved 103 cows compared with 1,300 infected with *Str. agalactiae*. Clinical changes were observed in most of the udders infected with Group Ca streptococci, in half of those infected with Group G, and a quarter of those with Group L. Penicillin eliminated infection with these streptococci in 138 out of 143 cows.

—A. ACKROYD.

KRÜGER, W. (1953). Die Beeinflussung der Mastitishäufigkeit in den Milchtierbeständen durch die Zuchtwahl. [**Heredity in bovine mastitis.**]—*Proc. XVth Int. vet. Congr. Stockholm, 1953. Part I*, Vol. 2, 881-886. [In German. English and French summaries.] 2248

Three hundred and thirty-eight cows, kept under identical hygienic conditions, examined regularly over a period of 3 years and treated with penicillin if infected, showed familial predisposition to infection with *Str. agalactiae*. K. questioned the advisability of breeding from cows with mastitis. Eighty per cent of cows which develop mastitis become infected before the end of the third lactation: K. suggested that these are the cows especially predisposed to infection.—R. B. HOLCOMBE.

ST. GEORGE, C. & PILLAI, P. B. K. (1954). *Streptococcus agalactiae* associated with multiple abscesses in a recently captured wild elephant.—*Ceylon vet. J.* 2, 95-96. 2249

The authors reported *Str. agalactiae* in subcutaneous abscesses in an elephant.—A.S.

OCHI, Y., OGATA, M., SATO, H., KONISHI, S. & YOSHIDA, E. (1953). [Studies on haemolytic streptococci. IV. On non-haemolytic streptococcus isolated from g. pigs.]—*Jap. J. vet. Sci.* 15, 259-272. [In Japanese. English summary.] 2250

Haemolytic and non-haemolytic strepto-

cocci were isolated in pure cultures from a fatal septicaemic infection which occurred in a stock of g. pigs. From studies on the mutual variability of these two types by serial passage in mice or in culture media, the authors suggested that the non-haemolytic organism is a variant strain which has lost the ability to produce haemolysin.—KOGI SAITO.

I. BROWN, J. H. (1953). **Classification of streptococci, groups A, B, C and D.**—*Int. Bull. bact. Nom. Taxon.* **3**, 163-169. 2251

II. BROWN, J. H. (1953). **Classification of the genus *Streptococcus*.**—*Int. Bull. bact. Nom. Taxon.* **3**, 170-174. 2252

I. B. stated his reasons for regarding most of the streptococci as varieties (in Groups A, B and D) thus:

Group A: *Str. pyogenes* var. *pyogenes*; var. *infrequans*; var. *scarlatinae*; var. *alac-tosus*; var. *potens*.

Group B: *Str. agalactiae* var. *agalactiae*; var. *mastitidis*; var. *asalignus*; *Str. opportunus* var. *opportunus*.

Group D: *Str. faecalis* var. *faecalis*; var. *liquefaciens*; var. *zymogenes*; var. *durans*.

In Group C: the differences are equal to species as *Str. equi*; *Str. equisimilis*; *Str. zoo-epidemicus*; *Str. dysgalactiae*.

II. B. gave a key listing the nine species, with varieties, as *Str. pyogenes*, *Str. agalactiae*, *Str. opportunus*, *Str. equi*, *Str. zooepidemicus*, *Str. equisimilis*, *Str. dysgalactiae*, and *Str. uberis* and citing group E as of *Str. tardus* alone— β -haemolytic with hippurate hydrolysis detectable only by formol titration.

—MALCOLM WOODBINE.

RUSNAK, N. E. (1954). [Haemo-therapy of diplococcal septicaemia in young calves.]—*Veterinariya, Moscow.* **31**, No. 12, pp. 32-33. [In Russian.] 2253

Because transfusions of the dam's blood have been found to be effective in calf septicaemia, i/v injections of maternal blood to which a sulphonamide ("sulphantrol") has been added are now given as a prophylactic measure to calves, 2-3 days after birth. The drug acts as a preservative for the blood which can thereby be kept safely for 24 hours at 8° to 10°C.—A. MAYR-HARTING.

BROWN, E. R. & CHERRY, W. B. (1955). **Specific identification of *Bacillus anthracis* by means of a variant bacteriophage.**—*J. infect. Dis.* **96**, 34-39. [Authors' summary modified.] 2254

The authors described a variant bacteriophage (γ) which exclusively attacks all strains

of *B. anthracis* which have been tested. This phage is a strain of the W phage, from which it differs in its apparent capacity to lyse all variants of the anthrax organism. Some strains of *B. anthracis* which were resistant or only slightly susceptible to the W phage were attacked strongly by the γ phage under the conditions of the experiments.

I. BELTON, F. C. & STRANGE, R. E. (1954). **Studies on a protective antigen produced in vitro from *Bacillus anthracis*: medium and methods of production.**—*Brit. J. exp. Path.* **35**, 144-152. [Abst. from authors' discussion and summary.] 2255

II. STRANGE, R. E. & BELTON, F. C. (1954). **Studies on a protective antigen produced in vitro from *Bacillus anthracis*: purification and chemistry of the antigen.**—*Ibid.* 153-165. [Authors' summary modified.] 2256

I. Adherence to Pasteurian methods for the prophylaxis of anthrax has been dictated by the fact that no alternative was known. A sterile non-toxic product would have advantages, and this would be particularly true if the material could be produced in bulk in a semi-synthetic medium from a non-virulent strain. Apart from its probable usefulness at least in veterinary medicine, the study of the chemical nature of the antigen involved would be greatly facilitated. The work described was directed to this end.

The authors gave details of a semi-synthetic medium in which certain virulent and non-virulent strains of *B. anthracis* will produce a protective antigen which can be concentrated by lyophilization or by alum precipitation, and which yields a product which is non-toxic. It immunized rabbits and monkeys. Large amounts of the antigenic material can be produced with normal laboratory equipment.

Hyper-immunization of horses with the antigen produced a protective serum at least equal in potency to the best that can be obtained by similar immunization with living spore vaccine.

II. After *B. anthracis* has grown in a non-protein medium it is possible to isolate from the culture filtrate a mixture of growth products which contains protective antigen. The components of such growth products vary according to the strain of organism and the type of medium used but a protein and a galactose: glucosamine polysaccharide are always present.

The authors isolated the protein from growth filtrates; it had the property of a strong protective antigen against anthrax, 25 μ g. protecting rabbits against a challenge dose of 250

average lethal doses of spores. Although no definite criteria of purity are presented the sedimentation patterns obtained could be those of a homogeneous substance.

They isolated a polysaccharide from growth filtrates which sedimented as a homogeneous substance and was similar to that described by Ivanovics (1938).

ALBISTON, H. E., PULLAR, E. M. & GRAYSON, A. R. (1954). **The epidemiology of tuberculosis in Victorian pigs.**—*Aust. vet. J.* **30**, 364-376. **2257**

Both avian and bovine type tuberculous infections occur in pigs in Victoria. In the area where TB. is endemic in domesticated poultry, the incidence in pigs is slightly higher than elsewhere and the avian type of infection appears to be predominant.

The overall incidence has fallen from 4-5% to 1.5-2.5% over the past 40 years, but there has been an apparent rise in the last few years to 3-4%.

The authors laid particular emphasis on dairy cattle faeces and poultry as sources of infection. They discussed methods of control.
—K. G. JOHNSTON.

PEIXOTO, W. (1952). Incidência da tuberculose bovina no Rio Grande do Sul. [**Incidence of bovine TB. in Brazil.**] — *Bol. Dir. Prod. Anim., Brasil*, **8**, No. 12, 45-49. **2258**

P. estimated the incidence of TB. in cattle in Brazil over the years 1937-51, from the records of tuberculin tests which had been carried out on a proportion of all cattle sent to slaughter throughout the country during these years. He gave the results in tables.

—R. G. MARES.

ROUX, L. (1954). Tuberculose spontanée ou tuberculose de cohabitation des cobayes. [**Spontaneous TB. in g. pigs.**] — *Schweiz. Arch. Tierheilk.* **96**, 61-73. [In French. English, German and Italian summaries.] **2259**

Four out of 135 g. pigs placed in cages in the same room as tuberculous g. pigs became infected after 6-24 months. The primary lesions were mainly pulmonary, suggesting that infection was airborne from neighbouring cages. R. considers that such indirect, spontaneous TB. is likely if more than a third of the cages contain infected animals.

Seven out of 50 g. pigs born to females which received injections of tuberculous material before or shortly after parturition, became infected. The primary lesions were in most cases alimentary.—J. E. SMITH.

BELLINGER, H. (1954). Statistische Untersuchungen über das gleichzeitige Vorliegen von positiven Bangtitern in Blut bzw. Milch und positiver Tuberkulinhautprobe beim Rind. [**Statistical investigation into the simultaneous occurrence of positive *Br. abortus* titres in blood or milk and positive tuberculin test in cattle.**]—*Zbl. Bakt. I. (Orig.)* **161**, 145-150. [English, French and Russian summaries.] **2260**

A statistical study based on more than 10,000 observations in dairy herds of one area showed that there was no correlation between the incidence of positive tuberculin reactions and high *Brucella abortus* blood and milk titres.
—W. G. SILLER.

DODD, M. C., FUNKHOUSER, J. W. & RHEINS, M. S. (1954). **Heat-stability of antibodies in tuberculous sera.**—*Proc. Soc. exp. Biol., N.Y.* **87**, 41-45. **2261**

Antibodies in the sera of tuberculin-negative cattle could be eliminated by heating at 70°C. for 10 min. while heat-stable antibodies were detected in samples of serum from tuberculous cattle. These heat-stable haemagglutinins and haemolysins, however, only occurred in 16% of tuberculous human, and 62.5% of tuberculous bovine sera, and were not found to be characteristic of TB. since rabbit immune sera against *M. tuberculosis* var. *bovis*., B.C.G., *M. phlei* and P.P.D. all exhibited diminished activity after heat-treatment.—A. B. PATERSON.

FOURIE, P. J. J. (1953). **Comparative intradermal tests between concentrated P.P.D. and diluted P.P.D. tuberculins in relation to non-specific tuberculin reactors.** — *Onderstepoort J. vet. Res.* **26**, 207-220. **2262**

In 760 cattle with a long history of freedom from TB., the number of reactors to P.P.D. at strength 1.5 mg. per ml. was significantly less than that to P.P.D. at 3.0 mg. per ml. In 62 animals in an infected herd, the higher strength yielded more positives than the lower, but if doubtful reactions were included no significant difference was apparent in the number of reactors to both tests. F. suggested that high potency tuberculins may be required in animals in a state of partial desensitization, but that for general use a low potency tuberculin is less likely to produce non-specific reactions.—A. B. PATERSON.

PATERSON, A. B. & LEECH, F. B. (1954). **Factors affecting the intradermal tuberculin reaction on the guinea pig.** — *Amer. Rev. Tuberc.* **69**, 806-817. [French and Spanish

summaries. Authors' summary slightly modified.] **2263**

Differences in the dose response curves of purified protein derivative and Old Tuberculin were demonstrated on g. pigs sensitized with dead organisms in oil; such differences can be measured only in large-scale assays. Similar results were obtained when the same experiment, using a fresh randomization scheme, was repeated after an interval of three months on the same set of sensitized g. pigs. Multiple tuberculin injections in the sensitized g. pig depressed the response to the individual injection. The depression is probably related to the degree of systemic response and is not a local influence of one tuberculin reaction on an adjacent one.

ROTOV, V. I. (1954). [The double intradermal tuberculin test in fowls.]—*Veterinariya, Moscow*, 31, No. 12, pp. 33-34. [In Russian.] **2264**

Using the single intradermal tuberculin test in fowls, R. found that 34.6% of infected birds failed to react; these became reactors to a "double intradermal" test, the same dosage (0.1 ml.) being injected into the same site 24 hours later. Uninfected fowls never reacted to either the single or the double test.

—A. MAYR-HARTING.

DRIEUX, H. (1954). Post-mortem inspection and judgment of tuberculous carcasses.—*WHO/FAO Expert Committee on Meat Hygiene*. (WHO/Zoon/24.) pp. 17. [Mimeographed.] **2265**

In view of the world shortage of meat and the small risk of contracting TB. from meat, D. recommended revision of regulations governing its seizure and condemnation. He discussed the pathogenesis in the light of present knowledge and recommended that the carcass ("red meat") should be condemned only when there is TB. with cachexia, acute milary TB. anywhere, or evidence that the defences have recently broken down. TB. of bone should be dealt with by complete removal of the skeleton and TB. of the serous membranes by removal of the inner muscular and bony wall of the cavity and the diaphragm. All other red meat should be passed after removal of infected lymph nodes. Viscera only should be condemned if their lymph nodes are infected. Condemned meat and viscera should be sterilized and sold if this is practicable. He pointed out that the best remedy would be a world-wide campaign against the disease.—R. MACGREGOR.

MORETTI, B. & PEDINI, B. (1953). Sulla attività preventiva antitubercolare nel vitello nell'idrazide dell'acido isonicotinico. [The anti-tuberculous action of iso-nicotinic acid hydrazide in calves.]—*Nuova Vet.* 29, 322-324. [English and French summaries.] **2266**

Daily intramuscular doses of iso-nicotinic acid hydrazide were found to protect young calves from natural tuberculous infection over a test period of two months.—I. W. JENNINGS.

SMITH, H. WILLIAMS. (1954). An unsuccessful search for lysogenic strains of *Mycobacterium tuberculosis*.—*J. Path. Bact.* 68, 283-284. [Author's summary modified.] **2267**

S. could not demonstrate lysogenicity in one cold-blooded strain, 12 strains of bovine type, and 21 strains of human type tubercle bacilli.

YONEMURA, T., IIZUKA, M., SHIGA, K., NEMOTO, H. & KAWANISHI, Y. (1953). Studies on the metabolism of tubercle bacilli. I. Changes of nutritional elements in the synthetic Dorset and Sauton medium following the growth of bacilli.—*Exp. Rep. Govt. exp. Sta. Anim. Hyg., Japan*. No. 27. pp. 249-262. [In Japanese and English.] **2268**

YONEMURA, T. & IIZUKA, M. (1953). Studies on the metabolism of tubercle bacilli. II. The change of free amino acid in Dorset and Sauton medium and amino acids which constitute the tuberculin protein.—*Ibid.* pp. 263-275. [In Japanese and English.] **2269**

I. Phosphate, magnesium, glucose and glycerol in the medium decreased as growth of tubercle bacilli proceeded, while the potassium content increased at the peak of growth. Glycerol was utilized more rapidly on Sauton than on Dorset synthetic medium.

II. In Sauton medium aspartic acid appeared in addition to asparagine at the 7th day and glutamic acid at the 17th day. All three had disappeared by the 57th day of cultivation. In Dorset medium, the aspartic and glutamic acids appeared on the 17th day and with asparagine had disappeared by the 97th day. Alanine appeared between the 27th and 37th days, and after 67 days glycine, valine, leucine and histidine were demonstrable.

The tuberculoproteins from the media yielded amino-acids in slightly different amounts, but were qualitatively similar, containing cystine, aspartic acid, glutamic acid, serine, glycine, threonine, alanine, valine, leucine, phenylalanine, histidine, lysine, arginine and proline.—A. B. PATERSON.

ENGBAEK, H. C. (1954). Differentiation between tubercle bacilli and acid-fast saprophytes for

diagnostic purposes.—*Acta path. microbiol. scand.* **34**, 68-78. [In English.] 2270

Ninety-two strains of tubercle bacilli of different types and virulence and 64 mycobacterial saprophytes were typed by 5 *in vitro* methods after primary isolation on Loewenstein-Jensen medium. Direct agar microscopy gave 11 strains of tubercle bacilli not exhibiting typical serpentine cord formation on Dubos oleic-acid albumin agar; all strains of tubercle bacilli except avian type failed to give a positive arylsulphatase test, while a positive reaction was yielded by all except two saprophytes; complete inhibition of growth on penicillin-containing medium gave the most valuable information and indicated that a strain was saprophytic; growth on Loewenstein-Jensen medium at 22°C. occurred only with saprophytes and avian type tubercle bacilli; 8 saprophytic strains could only be distinguished from avian type tubercle bacilli by biological typing in rabbits and fowls.

—A. B. PATERSON.

NOËL, R. & MARIE-SUZANNE (SOEUR). (1953).

A propos de la formation des cristaux sur la membrane de poulet inoculée avec des bacilles de Stéfansky. [The formation of crystals on the membrane of chick embryos inoculated with *Mycobacterium leprae-muris*.]—*C. R. Acad. Sci., Paris*. **236**, 753-756. 2271

Polymorphous, rectangular or elongated crystals, insoluble in fat solvents and acids, were formed on the internal surface of the allanto-chorionic membrane in approx. one third of chick embryos inoculated with *M. leprae-muris*. The crystals stained readily in Sudan dyes.—R. B. HOLCOMBE.

VISCHER, W. A., DANIELS, J. & PAPPENHEIMER, A. M. (1955). Observations on a pleomorphic *Mycobacterium* isolated from mouse brains. I. Cultural and morphologic characteristics.—*Amer. Rev. Tuberc.* **71**, 88-96. [French and Spanish summaries.]

PAPPENHEIMER, A. M., DANIELS, J. & VISCHER, W. A. (1955). Observations on a pleomorphic *Mycobacterium* isolated from mouse brains. II. Pathology and comparison of lesions with those produced by certain other strains of mycobacteria.—*Ibid.* 97-111. [French and Spanish summaries.] 2272

I & II. A strain of *Mycobacterium* isolated from a pool of mouse brain tissue resembled avian type strains in cultural characteristics and was non-pathogenic to the g. pig, chicken and rabbit.

Acid-fast granules, believed to be part of a developmental cycle, were found *in vitro* and in the brain following intracerebral injection.

—A. SEAMAN.

CONSDEN, R. & GLYNN, L. E. (1955). Chemically identifiable bacterial residues in lung lesions.—*Lancet*. **268**, 943-945. [Authors' summary modified.] 2273

The authors described a method for identifying α - ϵ -diaminopimelic acid in some lung lesions in human beings. This amino-acid was found in a non-caseous tuberculous lung tissue in which microscopic examination, culture and animal inoculation had failed to reveal infection, but not in a sample of "progressive massive fibrosis" nor in an "infective nodule".

The bacterial residues in the caseous nodule represented a weight of infection amounting to about 20% of the dry weight of the lesion.

WEIDLICH, N. (1954). Beitrag zur Histologie der paratuberkulösen Darmentzündung des Rindes. [Histology of Johne's disease lesions in cattle.]—*Rindertuberculose*. **3**, 226-238. 2274

An account of histological changes in Johne's disease of cattle. Besides the characteristic diffuse proliferation of epithelioid cells and macrophages, there were nodular lymphocytic infiltrations. Regressive changes resembling those of TB. were sometimes found in granulation tissue in affected lymph nodes. Generalization of the disease, with typical microscopic lesions in some organs, may occur in advanced cases.—W. G. SILLER.

CUMMINS, C. S. (1954). Some observations on the nature of the antigens in the cell wall of *Corynebacterium diphtheriae*.—*Brit. J. exp. Path.* **35**, 166-180. 2275

The investigation was made using suspensions of the intact organism and of its disintegrated cell wall material. The superficial specific protein antigen was found to be responsible for agglutination in the intact organism and to be heat labile. The deeper group antigen is probably polysaccharide and heat stable. These antigens may be useful in classification.

—W. S. MARSHALL.

NANDI, S. N. (1954). An investigation into bovine haematuria in Kalimpong (District Darjeeling), India.—*Brit. vet. J.* **110**, 354-358. [Abst. from author's summary.] 2276

N. discussed evidence from the literature supporting the view that cystitis and pyelonephritis of cattle is caused by *Corynebacterium renale* in conjunction with a subsidiary factor

which irritates and damages the kidneys during its excretion from the body. He suggested that in India, this factor (or factors) is derived from various plants which are fed to cattle or ingested in excessive quantities. He gave a list of 25 such plants.

CHAMBON, L., DE LAJUDIE, P. & FOURNIER, J. (1954). Étude de la sensibilité du bacille de Whitmore aux antibiotiques *in vitro* et chez les malades atteints de mélioiïdose. [Effect of antibiotics in treatment of melioidosis.]—*Bull. Soc. Pat. exot.* **47**, 139-153. 2277

Chloramphenicol is the only antibiotic found effective against melioidosis, especially when there is septicaemia. Aureomycin and terramycin are useless, as are associations of these antibiotics. Resistance to chloramphenicol may be developed, especially in early stages, but there is synergism of this drug with aureomycin and terramycin.—F. R. PAULSEN.

BIVINS, J. A., HUDSON, C. B., TUDOR, D. C. & BLACK, J. J. (1955). Erysipelas infection in poultry.—*J. Amer. vet. med. Ass.* **126**, 135-136. 2278

During the two years, 1952-53, two outbreaks of *Erysipelothrix rhusiopathiae* infection were diagnosed in yearling fowls in New Jersey. There were 22 outbreaks in turkeys in this period. Only 30 outbreaks of the infection had been diagnosed in the preceding 17 years.

—E. A. GIBSON.

LINSERT, H. (1954). Ein Beitrag zur Listeriose der Schafe. [*Erysipelothrix* (*Listeria*) *monocytogenes* infection in sheep.]—*Mh. VetMed.* **9**, 445-449. 2279

A general account of *E. monocytogenes* infection with a note on differential diagnosis from other nervous diseases and from vitamin deficiencies.—W. G. SILLER.

KEMENES, F. (1955). Adatok a hazai juhlistériosis oktanához és kórokozójának kitenyésztéséhez. [Isolation of *Erysipelothrix* (*Listeria*) *monocytogenes* from infected sheep, in Hungary.]—*Mag. állator. Lapja.* **10**, 115-118. [English and Russian summaries. Abst. from English summary.] 2280

K. described a medium for the isolation of *E. monocytogenes* from the medulla oblongata of infected sheep; it consisted of horse meat broth to which 0.3% sodium thioglycollate and 10% of defibrinated sheep blood had been added.

Six experimentally infected sheep did not develop clinical symptoms, but antibodies were demonstrable in their blood serum in titres of

1:160-1:2,560. Five controls, kept for six months in contact with these sheep, remained free from the infection.—E.G.

CSONTOS, J. & PESTI, L. (1955). Juhok elvetélése listeriosis következtében. [*Listeriosis as the cause of abortion in ewes.*]—*Mag. állator. Lapja.* **10**, 118-121. [English and Russian summaries. Abst. from English summary.] 2281

Types I and IV of *Erysipelothrix* (*Listeria*) *monocytogenes* were isolated from aborted foetuses on three sheep farms in Hungary. Apart from retention of the placenta and metritis, the ewes were free from clinical signs of the infection. Of 1,213 serum samples from sheep from these farms 141 reacted to the complement-fixation test, 160 to the agglutination test and 45 to both tests.—E.G.

HIRATO, K., SHIMIZU, K., ONO, T., SATO, G., YAWATA, Y. & NISHIHARA, Y. (1954). Bacteriological observations on an outbreak of ovine listeriosis in Sapporo.—*Vet. Res., Japan.* **1**, 191-201. [In Japanese. English summary.] 2282

Erysipelothrix (*Listeria*) *monocytogenes* infection occurred in 21 sheep in a flock of 589 within a period of 20 days in May 1952. The organism was isolated from the brain stem, cerebellum and thalamus of 8 cases examined bacteriologically. More than 8 ovine strains examined serologically had the same somatic and flagellar antigens (designated type C); one strain from goats differed from the sheep strains in certain respects and was designated type A. Attempts to reproduce the infection in goats and sheep were unsuccessful.—KOGI SAITO.

CSONTOS, L., DERZSY, D. & TÓTH, B. I. (1955). Listeriosis fiatal libákban. [*Listeriosis in goslings.*]—*Mag. állator. Lapja.* **10**, 110-115. [English and Russian summaries. Abst. from English summary.] 2283

Erysipelothrix (*Listeria*) *monocytogenes* was isolated during an outbreak on a farm in Hungary which killed 40% of goslings three weeks of age and younger. Sera of goslings, experimentally infected with the isolated strains agglutinated two ovine laboratory strains, but sera from those infected with the ovine strains did not agglutinate the strains of avian origin. Experimentally infected goslings responded to treatment with sodium sulphamethylthiazole ("ultraseptyl") and aureomycin.—E.G.

SEELIGER, H. (1954). Biotypen von *Listeria monocytogenes*. [Types of *Erysipelothrix* (*Listeria*) *monocytogenes*.]—*Z. Hyg. InfektKr.* **139**, 389-392. 2284

S. found that it was impossible to type strains of *E. monocytogenes* by observation of their action on melezitose in culture.—A.S.

JAEGER, R. F. & MYERS, D. M. (1954). *Listeria monocytogenes*—a study of two strains isolated from human listeriosis.—*Canad. J. Microbiol.* **1**, 12-21. 2285

Two strains of *Erysipelothrix (Listeria) monocytogenes* from meningitis in human beings in the U.S.A. were more virulent when cultured at low temperatures (2.8° to 5°C.) than when grown at 37°C. Chloroform and ether extracts produced a monocytic response in rabbits. Heat-killed cultures protected g. pigs against lethal infection with the virulent organism. The two strains were penicillin-sensitive and were serologically similar.—R. GWATKIN.

BAIN, R. V. S. (1954). *Studies on haemorrhagic septicaemia of cattle. I. Naturally acquired immunity in Siamese buffaloes. II. The detection of naturally acquired immunity.*—*Brit. vet. J.* **110**, 481-484 & 519-524. [Author's summaries modified.] 2286

I. B. observed a fairly high incidence of naturally acquired immunity to bovine type *Past. septica* among buffaloes in Thailand. He discussed the possible origin of this immunity and its significance in the conduct of experiments on vaccination against haemorrhagic septicaemia.

II. B. described a simple agglutination test for the detection of cattle with naturally acquired immunity to haemorrhagic septicaemia. The application of the test to experimental buffaloes purchased in Thailand has enabled vaccination experiments to be conducted with some confidence.

GWATKIN, R., DZENIS, L. & BYRNE, J. L. (1953). *Rhinitis of swine. VII. Production of lesions in pigs and rabbits with a pure culture of Pasteurella multocida.*—*Canad. J. comp. Med.* **17**, 215-217. 2287

Typical rhinitis was produced in piglets by nasal instillation of *Past. septica* Type B.

—P. J. G. PLUMMER.

DRÄGER, K. & SCHINDLER, R. (1953). Über die Dissociation von Kulturen der *Pasteurella multocida*. Ein Beitrag zur Morphologie der Kolonie. [Dissociation of cultures of *Past. septica*.]—*Vet.-med. Nachr.* Nos. 3/4, pp. 177-187. [English, French and Spanish summaries.] 2288

An account of the fluorescence of colonies of *Past. septica*, based on the work of Elberg & Cheng-Lee-Ho [*V.B.* **20**, 1620]. A feature of

the present paper is the reproduction of 15 colour photographs which demonstrate clearly the fluorescence of several types of colonies.

—R.M.

AZIZUDDIN, I. M. & CHANDRASEKHARAN NAIR, K. P. (1954). *Studies on Pseudomonas aeruginosa infection in animals.*—*Madras Vet. Coll. Ann.* **12**, 17-22. [Abst. from authors' summary.] 2289

The authors discussed the various pathological conditions from which *Ps. pyocyanea* has been isolated in the course of diagnosis of diseases in animals in the State of Madras. These include mastitis (bovine and ovine) otorrhoea in dogs and cattle, sinusitis in cattle, enteritis in calves and adult cattle, lung abscess in sheep and buffaloes, liver abscess in buffaloes, pneumonia in dogs, myocarditis, synovitis in cattle and bovine lymphangitis and local suppurating affection in other parts of the body.

In a case of sinusitis in a breeding bull, the disease became septicaemic and the organism was isolated in pure culture from the heart blood, the sinus and the lungs.

An outbreak of otorrhoea involving large numbers of buffaloes is considered to have been caused by *Ps. pyocyanea*. There is reason to believe that the organism is especially pathogenic for the buffalo.

Contrary to the prevailing notion that all cases of bovine lymphangitis are due to an organism belonging to *Pasteurella pseudotuberculosis* (type III), the authors found that many clinical cases of bovine lymphangitis are due to *Ps. pyocyanea*.

Ovine mastitis caused by *Ps. pyocyanea* had not previously been reported.

BRAEND, M. & FLATLA, J. L. (1954). Noen undersøkelser over *Haemophilus suis*. [Studies of *Haemophilus suis*.]—*Nord. Vet. Med.* **6**, 269-280. [In Norwegian. English and German summaries.] 2290

The authors discussed the role of *H. suis* as a primary and secondary aetiological agent in diseases of pigs. They found that the organism was always present in the nasal cavity of pigs with atrophic rhinitis. The cultural, morphological and biochemical properties of 14 strains isolated from polyarthritis, atrophic rhinitis, or from healthy pigs were found to be similar. The growth of all the strains examined was inhibited *in vitro* by a conc. of 0.25 units penicillin per ml., but they were not inhibited by 4 µg. dihydrostreptomycin per ml. —R.M.

BORNSTEIN, S., SAMBERG, Y. & MOSES, E. (1955). **The therapeutic effect of streptomycin on infectious coryza of chickens caused by *Hemophilus gallinarum*. IV. Clinical results observed in the field.**—*J. Amer. vet. med. Ass.* **126**, 215-219. **2291**

A general account of satisfactory results obtained since 1952 with streptomycin in large scale field trials in Israel.—F.E.W.

ROY, J. H. B., PALMER, J., SHILLAM, K. W. G., INGRAM, P. L. & WOOD, P. C. (1955). **The nutritive value of colostrum for the calf. X. The relationship between the period of time that a calfhous has been occupied and the incidence of scouring and mortality in young calves.**—*Brit. J. Nutr.* **9**, 11-20. [For previous parts, see *V.B.* **20**, 1701-1703; **22**, 1757-1760, 2532; & **25**, 1446.] **2292**

The authors investigated the incidence of scours in calves raised in sheds as a function of the length of time the sheds had been in use when the calves were introduced. The incidence of scours, and with it the fall in weight gain, was directly related to this time. Scouring occurred irrespective of the quantity of colostrum given to the calves. Calves on a "synthetic milk" diet developed scours more rapidly than calves on whole milk.—A.S.

FAIN, A. (1953). **Importance du réservoir animal dans l'épidémiologie des salmonelloses au Congo Belge et au Ruanda Urundi. [Animal reservoirs of *Salmonella* in the Belgian Congo.]**—*Ann. Soc. belge Méd. trop.* **33**, 403-421. [In French. Flemish summary.] **2293**

Out of 1,000 healthy and sick wild and domestic mammals and birds in the Belgian Congo, 85 were carriers of salmonella. Domestic ducks and rooks were important sources of infection for human beings. Thirty-five types of salmonella were isolated from either human beings, animals, or the water of lakes: 7 of these types had not been previously described, and 11 had not been previously recorded in the Belgian Congo. A cow infected with *S. dublin* was responsible for an outbreak of gastro-enteritis in human beings.—R.M.

NÉEL, R., KAWEH, M., JORGENSEN, K. & TASLIMI, H. (1953). **Introduction à l'étude des salmonella et des salmonelloses en Iran. [*Salmonella* spp. and salmonellosis in Persia.]**—*Bull. Acad. vét. Fr.* **26**, 547-554. **2294**

Ten different species of salmonella were isolated from domestic animals in Persia. The commonest were *S. dublin* in cattle, *S. derby* in pigs, and *S. gallinarum* and *S. pullorum* in

fowls. *S. abortus-ovis* was isolated from a ewe which aborted: the authors stated that this was the first record of the infection in sheep in Persia.—R.M.

AOKI, S. *et al.* (1953). **[Efficacy of chloromycetin in paratyphoid of horses.]**—*J. Jap. vet. med. Ass.* **6**, 228-233. **2295**

Chloramphenicol (chloromycetin) is effective in treatment of equine paratyphoid. Acute cases can be treated by oral or intramuscular administration of 60-70 mg./kg. for 7-10 days. Alleviation of symptoms was also observed in chronic cases.—KOGI SAITO.

MCGAUGHEY, C. A., SENEVIRATNE, P. & ST. GEORGE, C. (1954). **Paratyphoid (necrotic enteritis) of pigs in Ceylon. Report of an outbreak associated with *S. paratyphi B* and *S. adelaide*.**—*Ceylon vet. J.* **2**, 89-90. [Authors' summary modified.] **2296**

The authors isolated *Salmonella adelaide* from the faeces and *S. paratyphi B* from intestinal ulcers in a pig affected with paratyphoid (necrotic enteritis). They thought that this was the first record of *S. adelaide* from an animal. The pigs had been fed on unboiled swill.

BLÁŽEK, K., HRUŠKA, K. & KRÁL, J. (1953). **Salmonellosy u psů. [*Salmonella* infections in dogs.]**—*Veterinářství, Brno.* **3**, 273-274. **2297**

Of four outbreaks of salmonella infection, one affected cats and the others dogs, particularly puppies. Most were caused by *S. typhi-murium*, but in one outbreak which went on for some time in a large kennels, *S. enteritidis*, *S. danyasz* and *S. cholerae-suis* were also found. The mortality was high in both cats and dogs.—A. MAYR-HARTING.

FREDHOLM, H. (1954). **Some properties of *Salmonella typhi murium* (Breslau bacillus) with particular regard to the presence thereof in milk and dairy products.**—*Nord. VetMed.* **6**, 851-865. [In English. German and Swedish summaries.] **2298**

F. discussed the resistance of *S. typhi-murium* to high and low temp., to preservatives such as brine and nitrites, and to X rays, cathode rays, and ultra-violet rays. He found that the application of a 5-10% soln. lactic acid destroyed surface contamination of solid foods. In milk, fermentation destroyed the organism before the milk coagulated; the addition of up to 0.6% lactic acid did not.—A. ACKROYD.

GWATKIN, R. & DZENIS, L. (1954). **Salmonellosis. I. Agglutination tests in experimental infections in chickens.**—*Canad. J. comp. Med.* **18**, 155-167. **2299**

Single-strain stained *S. pullorum* antigens were fairly efficient under conditions of artificial infection, but there were sufficient failures to make their practical application to cleaning up flocks very doubtful. Agglutinins tended to disappear in birds which were still infected.

—P. J. G. PLUMMER.

GIBSON, E. A. (1955). **Salmonella manhattan infection.** (Correspondence).—*Vet. Rec.* **67**, 138. **2300**

In addition to imported spray-dried eggs, *S. manhattan* has been isolated in Britain from the apparently normal caecum of a 16-week-old turkey which had died from rupture of a dissecting aortic aneurysm. Half the batch from which this bird had come, died within a few weeks of hatching, supposedly from chilling, but a concurrent infection with this organism may have been present.—A. ACKROYD.

SCHMIDT, U. (1954). Massensterben von Möwen infolge einer *Bacterium enteritidis* Breslau-Infektion. [Outbreak of *Salmonella typhi-murium* infection amongst gulls on the Island of Riems, Germany.]—*Zbl. Bakt. I.* (Orig.). **160**, 487-494. **2301**

A strain of *S. typhi-murium* having the serological formula IV (V?), i, 1, 2 and which failed to ferment rhamnose and fermented dulcitate only slowly, was the cause of a large number of deaths among seagulls on the Island of Riems.—W. G. SILLER.

ROBERTSON, A. (1954). **Brucellosis in Britain—past present and future.**—*Vet. Rec.* **66**, 567-573. **2302**

In Britain prior to 1942, the incidence in cattle of *Br. abortus* infection, the only brucella infection at present occurring, was reported to be 40%. With the introduction of the Calf Vaccination Scheme using Strain 19 vaccine, the abortion rate has been reduced, but the incidence of undulant fever in the population has not decreased and reactions to the brucella milk ring test show that the incidence of infection is still high. This test correlates well with the blood test. The incidence of the infection was equally high in the Scandinavian countries up to 1946, and by state action, it has almost been eradicated, initially by calfhood vaccination combined with control measures involving isolation of reactors, especially isolation at calving time and after abortion, and latterly by

slaughter of all reactors. The disease could also be rapidly eradicated in Britain by the adoption of similar measures.—A. ACKROYD.

POMALES-LEBRÓN, A. & FERNÁNDEZ, C. (1953). **Resistance to reinfection in experimental brucellosis.**—*Proc. Soc. exp. Biol., N.Y.* **84**, 535-538. [Authors' summary modified.] **2303**

The purpose of the present work was to determine if a relationship exists between resistance to superimposed infection and the presence of the organisms of primary inoculation in the body of g. pigs infected with *Br. abortus*. The organisms of reinoculation never persisted in the tissues in the presence of the brucellae of primary infection, except in one g. pig reinoculated 11 days after infection. Some animals, from which the organisms of the original infection were not recovered from any of the tissues, were resistant to reinfection. Resistance waned gradually after the organisms of primary inoculation could no longer be recovered from the tissues.

A local reaction with abscess formation was produced at the site of subcutaneous inoculation in infected guinea pigs; brucellae were recovered in large numbers from these lesions. The organisms of reinfection penetrated into the deep tissues but disappeared promptly. This suggests that the local reaction was not a major contributing factor in resistance to reinfection. When previously infected animals were injected intracardially the brucellae of reinfection also disappeared rapidly from the tissues.

In order to meet the criticism that intracellular brucellae could not be cultivated by routine methods, all tissues were cultivated after disintegration by rapid vibration, under optimal conditions. The results obtained with this technique corroborated the findings obtained with other methods.

It is puzzling to see that the *Brucella* of original infection can persist for months in the tissues from which the organisms of reinoculation disappear rapidly. An explanation for this phenomenon is not apparent and these studies are being extended in an attempt to clarify this point.

Cultivation of disintegrated blood on the surface of solid media had advantages over conventional routine methods for the isolation of brucella from the blood.

ELEK, P. & VIZY, L. (1954). Újabb agglutinációs eljárások festett antigénnel a brucellosis-fertőzöttség kimutatására. [Diagnosis of brucellosis using stained antigens.]—*Mag.*

allator. Lapja, 9, 46-48. [English and Russian summaries.] 2304

The authors employed brucella antigen stained with 2,3,5 triphenyltetrazolium chloride in the loop test described by Takátsy (1950), and the rapid slide test using whole blood. Approximately 90% of samples positive to the tube agglutination test were positive to these tests. The filter paper technique described by Castaneda [*V.B.* 24, 3753] gave unsatisfactory results.—R.M.

OGONOWSKI, K. & McDIARMID, A. (1954).

Comparison of the ring, plate and whey tests for brucellosis, using milk from cattle of proven brucella status.—*Vet. Rec.* 66, 751-754. [Authors' summary modified.] 2305

Using cattle of known *Br. abortus* history, the authors compared the efficiency of various tests for detecting *Br. abortus* agglutinins in milk. They considered the plate test to be the most simple and accurate method at present available. Vaccination with Strain 19 before breeding age did not appear to provoke to any significant extent the appearance of agglutinins detectable by these tests. The milk agglutination tests appeared to be a more reliable means of detecting carrier cows than infrequent routine biological tests of milk.

KUZDAS, C. D. & MORSE, E. V. (1953). **A selective medium for the isolation of brucellae from contaminated materials.**—*J. Bact.* 66, 502-504. 2306

A selective medium suitable for the isolation of brucella from aborted fetuses, milk, water, soil and manure was composed of the following:—6,000 units polymyxin B sulphate, 100 mg. actidione, 25,000 units bacitracin, 15,000 units circulin, and 1.4 mg. crystal violet in one litre of agar. *Br. suis* could be cultivated on this medium only in the presence of carbon dioxide.—R.M.

CEDRO, V. C. F., CISALE, H. O. & CACCHIONE, R. A. (1954). **La acción del oximetane sobre la brucella y su eficacia en la protección del personal de laboratorio. [The action of formaldehyde on brucella and its efficacy for the protection of laboratory workers.]**—*Rev. Med. vet., B. Aires* 36, 17-22 & 25-27. 2307

The authors, concerned at the numbers of cases of brucellosis in laboratory workers handling blood samples for agglutination tests, experimented with formaldehyde, and found it an efficient bactericidal agent for *Br. abortus*, *Br. suis* and *Br. melitensis*. Blood samples treated

with formol for three hours were quite safe to handle, and their agglutinating titres were unaffected.—I. W. JENNINGS.

STABLEFORTH, A. W. (1954). **The international standard for anti-*Brucella abortus* serum.**—*Bull. World Hlth Org.* 10, 927-935. [French summary.] [Author's synopsis slightly modified.] 2308

In limited-scale field trials on the eradication of brucellosis from dairy herds in Great Britain, which began in 1933, a serum standard of reference was used for the examination of agglutinating suspensions prepared in the laboratories which co-operated in the work. In 1937, the Office International des Epizooties (OIE) adopted this standard and made recommendations for its use internationally. These recommendations were revised by OIE in 1948, by the Third Inter-American Congress on Brucellosis and by the Joint FAO/WHO Expert Panel on Brucellosis in 1950, and again by the latter body in 1952. A new batch equivalent in potency to the original standard was established by the WHO Expert Committee on Biological Standardization in 1952 as the International Standard for Anti-*Brucella abortus* Serum.

The International Standard, or a national standard of equivalent potency, ensures comparability of the titres obtained in different countries by different methods, and the results of such comparisons can be expressed in a simple manner by describing the titres in terms of international units of *Brucella* antibody.

FRAS, A. (1954). **Tularemija životinja u NRH. [Tularaemia in hares in Yugoslavia.]**—*Vet. Glasn.* 8, 772-774. [In Croat. Abst. from German summary.] 2309

F. examined the serum of wild hares, obtained by trapping or shooting, by a rapid agglutination test, using as an antigen a suspension of killed *Brucella tularensis* stained with crystal violet. In a district of Yugoslavia where tularaemia had been recorded in human beings, 6 out of 43 hares reacted to the test, and 2 of the 6 were bacteriologically positive. In a district free from human infection there were no reactors amongst over 5,000 hares.—R.M.

BRYANS, J. T. (1955). **Studies on equine leptospirosis.**—*Cornell Vet.* 45, 16-50. [Author's summary modified.] 2310

B. demonstrated leptospiral agglutinins in the serum and the aqueous humour of horses affected with equine periodic ophthalmia.

He observed two cases of periodic ophthalmia in horses known to have been naturally infected with *L. pomona*. The apparent incu-

bation period from the onset of the leptospiral infection to the first occurrence of ophthalmitis was a year in one animal and 2 years in the second. He was unable to recover leptospira in culture from the blood, eye, and urine of one of these horses and from the affected eyes and other organs of 5 other cases of equine periodic ophthalmia.

He presented serological evidence that leptospirosis is a relatively common infection of horses. Thirty percent of a group of 512 serum samples from brood mares and other mature horses had agglutinins for either *L. pomona*, *L. icterohaemorrhagiae*, or *L. canicola*. The majority of reacting samples of serum (95) contained agglutinins for *L. icterohaemorrhagiae*. No agglutinins for these serotypes were found in the serum of 492 newly weaned horses.

YAMAMOTO, S. (1953). [Recent trend about research in moon-blindness.] — *J. Jap. vet. med. Ass.* **6**, 303-305. [In Japanese.] **2311**

The serum of all of 36 horses affected with equine periodic ophthalmia yielded a positive reaction with one or other of various strains of leptospira antigens, and in 7 cases a positive reaction occurred with two of the strains.

—KOGI SAITO.

STOLL, L. (1954). Über Vorkommen von Leptospiren und deren Antikörper beim Schwein. [Leptospira and leptospiral antibodies in pigs.] — *Mh. VetMed.* **9**, 401-403. **2312**

Antibodies to one or other of 11 strains of *Leptospira* were demonstrable in a titre of 1:400 in the serum of 5 out of 302 clinically healthy pigs and in 15 out of 243 pigs affected with swine fever. S. suggested that this may have been a non-specific reaction.

—W. G. SILLER.

KMETY, E. (1954). Leptospirenforschung in der Slowakei. [Leptospira in Slovakia.] — *Zbl. Bakt. I. (Orig.)* **161**, 382-389. [English, French and Russian summaries.] **2313**

Seven different types of leptospira were found to have caused infection in 139 human beings in Slovakia since 1949. In Bratislava 38% of rats were found to be carriers. Out of 364 mice caught by trapping, the serum of 33 contained leptospira agglutinins, chiefly against *L. grippotyphosa*. —W. G. SILLER.

CZEKALOWSKI, J. W. & EAVES, G. (1954). Formation of granular structures by leptospirae as revealed by the electron microscope. — *J. Bact.* **67**, 619-627. **2314**

After 2 weeks' cultivation small granules are demonstrable in *Leptospira* organisms which have shallower spirals than normal. At 4 weeks

large granules appear which consist of an outer membrane and an inner mass of rope-like leptospiral tissue. These become free and the authors suggested that they are part of a life-cycle. —A. SEAMAN.

MITSCHERLICH, E. & BRATKE, E. (1954). Die Enterotoxaemie der Schafe. [Enterotoxaemia in sheep.] — *Berl. Münch. tierärztl. Wschr.* **67**, 229-232. [English summary.] **2315**

An outbreak of pulpy kidney disease (*Cl. welchii* Type D) with a mortality of 5% occurred in lambs receiving, besides their dams' milk, 250 g. concentrates. Active immunization prevented further losses in some holdings.

—W. G. SILLER.

GORINI, L. (1953). Studio sul comportamento della colinesterasi nell'intossicazione tetanica. I. II. & III. [Behaviour of cholinesterase in tetanus.] — *Boll. Ist. sieroter., Milano.* **32**, 345-350; 351-354; & 355-361. [English summaries.] **2316**

G. had previously demonstrated that tetanus causes no variation of cholinesterase activity. However, further work revealed that the subcutaneous injection of an anticholinesterase drug, i.e., eserine, causes the death of tetanic g. pigs in 10 min. to one hour. The same dose of eserine is easily tolerated by normal g. pigs.

Histochemical tests revealed that in control g. pigs the injection of eserine does not reduce considerably the amounts of cholinesterase in the muscles, whilst the contrary was observed in the subjects affected by tetanus. —I. MARTINI.

MUELLER, J. H. & MILLER, P. A. (1954). Variable factors influencing the production of tetanus toxin. — *J. Bact.* **67**, 271-277. **2317**

The authors discussed some of the reasons for irregularity of result, or failure in the production of tetanus toxin from a strain of *Cl. tetani* with particular reference to the media used. —W. S. MARSHALL.

STONE, J. L. & LEVINE, L. (1954). Effect of the elimination of native proteins on the yield and purification capacity of tetanus toxoid. — *Appl. Microbiol.* **2**, 262-263. **2318**

Higher yields and greater purity of tetanus toxoid were obtained when veal infusion was omitted from the culture medium. To account for this, the authors suggested that in media initially low in protein there was increased formation of proteins of bacterial origin. —R.M.

BOTIJA, C. S. (1954). Le botulisme des équidés en Espagne (Epizootologie clinique, traite-

ment et prévention). [Equine botulism in Spain.]—*Bull. Off. int. Epiz.* 42, May, pp. 759-764. 2319

Botulism, caused by Type C organisms, is relatively frequent in central Spain. B. discussed the incidence of the disease, clinical observations, and the role played by cats in infecting stored grain. He quoted a district in which botulism was reported on 24 farms: cat excreta containing toxin were discovered in 9 out of 14 of the farms which were investigated. He recommended that serum treatment should be given to affected horses as soon as symptoms appeared, and also to other exposed horses as a prophylactic measure.—A.S.

PRÉVOT, A.-R. & BRYGOO, E. R. (1953). Nouvelles recherches sur le botulisme et ses cinq types toxiques. [Studies on botulism and of the five types of toxin.]—*Ann. Inst. Pasteur.* 85, 544-575. 2320

A detailed account on the presence in France of the five types of botulinus toxin and on the relative type distribution of *Cl. botulinum*. The authors made extensive studies on the nature of the five types of *Cl. botulinum* toxin and on their inactivation. They discussed the diagnosis of botulism.—J.D.

BARRON, A. L. & REED, G. B. (1954). *Clostridium botulinum* Type E toxin and toxoid.—*Canad. J. Microbiol.* 1, 108-117. 2321

Botulinus Type E toxin was readily converted to toxoid with formol at 30°C. The product was highly antigenic, but was improved by adsorption on alum. In immunized mice a high level of protection was demonstrable. By the addition of Types A and D to Type E, a higher level of immunity against Type E toxin was obtained than when Type E was used alone.

—R. GWATKIN.

HOFF, H. & KALDAHL, M. (1954). *Vibrio fetus* abort hos sau. [Vibrio fetus abortion in ewes.]—*Nord. VetMed.* 6, 1-10. [In Norwegian, English and German summaries.] 2322

A report on bacteriological and serological investigations on 3 small flocks of sheep in Norway, in which 30-40% of the ewes aborted. Organisms isolated from aborted fetuses resembled cattle strains. Serum antibodies were present in aborting and non-aborting ewes and disappeared 2-3 months after abortion. Homologous antigen produced a stronger reaction. The vaginal mucus agglutination reaction was not considered to be of value. No source of

infection was traceable, and no infection was reported from in-contact cows.

—R. B. HOLCOMBE.

MACDONALD, J. B., SUTTON, R. M. & KNOLL, M. L. (1954). The production of fusospirochaetal infections in guinea pigs with recombined pure cultures.—*J. infect. Dis.* 95, 275-284. 2323

When periodontal material from human cases of gingivitis is inoculated into g. pigs a mixed infection of spirochaetes and a number of fusiform bacteria develops, spoken of as a fusospirochaetal infection. Such infections can be passaged normally in g. pigs, but earlier workers had reported that when the various organisms were isolated, cultured separately, and then inoculated into g. pigs, the latter did not develop typical fusospirochaetal infection.

Macdonald *et al.* succeeded in producing typical fusospirochaetal infection from separate cultures by first recombining the cultures on an agar plate, and then inoculating the mixed culture into g. pigs.—A.S.

PICCOLOTTO, O. R. (1954). Estado actual de la rinosporidiosis en veterinaria. [*Rhinosporidium seeberi* infection in horses and mules.]—*Rev. Vet. Milit., B. Aires.* 2, 255-258. 2324

P. gave a list of 40 cases of *R. seeberi* infection in horses and mules recorded in Argentina since 1944. Nineteen of them were observed by the author, the remainder by other authors. [See also *V.B.* 24, 3103.]

—I. W. JENNINGS.

COLLET, P., COULON, J., JOUBERT, L. & DALLERY, L. (1952-53). Nouveaux cas d'actinomycose chez le furet. [Three cases of actinomycosis in ferrets.]—*Bull. Soc. Sci. Vét. Lyon.* 54 & 55, 363-368. 2325

The authors reported on actinomycosis in 3 ferrets from the Veterinary School, Lyon. In all there was a swelling of the lower region of the neck which caused difficulty in eating. Pus from the swellings contained numerous white granules and on culture two of the cases yielded an organism similar to *Actinomyces israeli*. In the third case, *Fusocillus girans* was also present and it was not possible to isolate the actinomycete. The animals recovered completely on being given sulphonamide and iodide therapy after the swellings had been drained.

—G. C. AINSWORTH.

ANASTAS'YAN, S. N. (1954). [Susceptibility of Siberian roe deer, *Capreolus pygargus*, to caprine contagious pleuro-pneumonia.]—*Veterinariya, Moscow.* 31, No. 12, pp. 34-35. [In Russian.] 2326

Using the pleural exudate of a goat that had died from an experimental infection with caprine contagious pleuro-pneumonia, a Siberian roedeer was infected by the intratracheal route. A second animal, kept with the infected one, acquired the disease by contact. After their passage through deer the organisms were still fully virulent for goats.

—A. MAYR-HARTING.

VAN DER HOEDEN, J. & SHAMIR, A. (1954). [Contagious agalactia in goats in Israel.]—*Refuah vet.* 11, 27-33. [In Hebrew. Abst. from English summary: p. 51.] 2327

The authors stated that contagious agalactia was first reported in Israel in 1949, and that further outbreaks occurred following the importation of goats from Roumania and Switzerland in 1950. One outbreak occurred at the time of importation, and another 3 years later. They described the experimental infection of 2 goats, and the cultivation of the causal organism in chick embryos.—R.M.

DAFNI, I. (1954). [An outbreak of contagious agalactia in a small flock of white goats.]—*Refuah vet.* 11, 34-35. [In Hebrew. Abst. from English summary: p. 50.] 2328

A conventional note on the disease in 12 goats.—R.M.

VAN DER KAMP, C. J. G. (1953). Het bacteriologisch onderzoek van milten van nuchtere kalveren. [Bacteriological examination of the spleen from new-born calves.]—*Tijdschr. Diergeneesk.* 78, 879-881. [English, French and German summaries.] 2329

Material from 100 spleens of slaughtered normal new-born calves was cultured aerobically on two agar media and two broth tubes. In 20 cases growth occurred on all the media. In 3 cases growth was seen in one tube only. One of the cultures was studied further and the organism identified as *Bact. coli*.

—C. A. VAN DORSSEN.

MANN, S. O. & OXFORD, A. E. (1955). Relationships between viable saccharolytic bacteria in rumen and abomasum of the young calf and kid.—*J. gen. Microbiol.* 12, 140-146. [Authors' summary modified.] 2330

The abomasums of three very young calves and two kids, of which all, except one suckled kid, had been fed milk by bottle, were found to be supporting large populations of lactobacilli of both homo- and heterofermentative types. The heterofermentative organisms in every instance corresponded in fermentative reactions to *Lactobacillus fermenti*. This organism was also found in one calf's rumen whither

it had probably come from the abomasum. The single homofermentative strain isolated from a calf was very near to *L. acidophilus* in fermentation reactions. Homofermentative isolates from the kid abomasum all seemed to belong to a new and unusual variety of *L. acidophilus* (var. *caprae*) which was amylolytic, insensitive to chlortetracycline (aureomycin), and hydrolysed aesculin.

The rumen and abomasum of the young calf contained an atypical variety of amylolytic streptococcus, differing from the typical *Str. bovis* of the adult rumen in being non-haemolytic and in fermenting mannitol. The typical rumen *Str. bovis* is sometimes truly iodophilic. These rumen and abomasum streptococci and lactobacilli are probably not introduced *via* the milk.

MANN, S. O., MASSON, F. M. & OXFORD, A. E. (1954). Facultative anaerobic bacteria from the sheep's rumen.—*J. gen. Microbiol.* 10, 142-149. [Authors' summary modified.] 2331

The authors studied some 300 facultative anaerobic strains, isolated by Heald *et al.* [*V.B.* 24, 378] from the rumen of a hay-fed sheep. The 120 streptococcal isolates all belonged to Lancefield's serological group D; 82% had fermentation and other reactions similar to *Str. bovis*; 6% resembled *Str. faecalis* and the remaining 12% were unclassifiable by existing schemes. *Str. faecalis* could also be isolated from old hay fed to the sheep. Staphylococcal isolates were all coagulase-negative, and 11 out of 12 conformed to subgroup 2 in the classification of Shaw *et al.* (1951). The coliform isolates were mostly of the true intestinal type. A few strains resembled *Aerobacter cloacae*, but *A. aerogenes* was not encountered. The large Gram-negative sarcina-like organism, previously detected in rumen contents by Baker *et al.* [*V.B.* 22, 3660] and by Moir & Masson (1952) was isolated in pure culture. They proposed to name it *Sarcina bakeri*. It fermented only glucose.

HARTLEY, W. J., JEBSON, J. L. & MCFARLANE, D. (1954). The artificial infection of sheep with a brucella-like organism. I. The artificial infection of ewes.—*N. Z. vet. J.* 2, 80-85. Summary: p. 89. 2332

JEBSON, J. L., HARTLEY, W. J. & MCFARLANE, D. (1954). The artificial infection of sheep with a brucella-like organism. II. The artificial infection of rams.—*Ibid.* 85-89. 2333

I. After a flock of 147 ewes had been with rams for about 3 weeks the authors infected 115 of them with 10^6 or 10^8 brucella-like organ-

isms from the semen of a ram with epididymitis. The remaining 32 ewes served as controls.

Abortions began at the 48th day of gestation and 4 of the 101 ewes which conceived had dead lambs. Sixty-four of the 101 had visible lesions in the foetal membranes. The organism was demonstrable by smear or culture in the abomasal contents, lungs and spleen of 70% of the lambs born dead. The rams, which remained with the flock and served the infected ewes which came into heat following abortion, did not contract the infection.

II. In another experiment the authors infected 46 ram lambs by intratesticular or intravenous inoculation, or by introducing the organism into the preputial cavity. The semen of infected rams was of much poorer quality than that of controls.

They pointed out that palpation of the genital organs did not reveal all infected rams, and that brucella-like organisms were not always present in the semen of infected rams.

—A.S.

SCOTT, J. K. & STANNARD, J. N. (1954). Relationship between *Bartonella muris* infection and acute radiation effects in the rat.—*J. infect. Dis.* **95**, 302-308. [Authors' summary modified.] 2334

See also absts. 2608 (maintenance of cultures in the steady state); 2609 (microbiological assay); 2615-8 (reports, Canada); 2631-3 (books, bacteriology).

Latent *Bartonella muris* infection in the rat was activated by injecting radio-active polonium, or by whole body exposure to 600 r of 250 kV X-rays. The resultant anaemia developed less rapidly and was not as severe as that induced when the infection was activated by splenectomy. The animals in which the infection was activated developed a more marked anaemia after irradiation than uninfected animals. The survival time after the injection of the isotope was, however, either unchanged or possibly slightly longer in the rats with active infection. The authors concluded that the presence of an active *Bartonella* infection in the rat does not exacerbate the lethal effects of an acute radiation dose, although the haematological response may be markedly altered.

CROCKER, K. W. & SUTTER, M. D. (1954).

Bovine eperythrozoonosis. — *Vet. Med.* **49**, 305-306. 2335

In a Kentucky herd of Hereford heifers and their calves, intermittent diarrhoea, icterus, anaemia and generally poor condition had been evident for over a year. Examination of the blood of one of these animals that died with emaciation, anaemia and icterus revealed the presence of *Eperythrozoon wenyonii*.

—A. ACKROYD.

DISEASES CAUSED BY PROTOZOAN PARASITES

MULLIGAN, H. W. (1954). Nigeria. West African Institute for Trypanosomiasis Research. Annual report 1953. pp. 64. Zaria, Nigeria: Gaskiya Corporation. 2336

Trypanosomiasis is the cause of serious losses among zebu cattle in West Africa, *T. vivax* and *T. congolense* being the commonest causal agents. The former is highly prevalent and pathogenic and is, therefore, of great economic importance.

Studies on the morphology of Nigerian strains of *T. vivax* in relation to virulence were carried out. The measurements of these strains were compared with those of strains from other parts of Africa, and from Mauritius and Panama. The evidence collected seemed to favour the view that there are two distinct types of *T. vivax*, differing in morphology and virulence, the shorter and more virulent type commonly found in West Africa, and the longer and less virulent type usually encountered in East Africa. The results of these investigations have been submitted for publication.

Studies on the factors governing the trans-

mission of *T. vivax* by *Glossina palpalis* were not completed owing to the absence on leave of the workers concerned during part of the year.

A strain of *T. vivax* has been established in white mice for the assessment of trypanocidal drugs and the study of drug resistance.

Specific antibodies in the sera of sheep and white rats infected with *T. vivax* have been demonstrated by the slide test and by *in vivo* tests.

T. simiae, the cause of acute, and usually fatal, trypanosomiasis of pigs is of considerable importance in Africa and it was therefore investigated. A strain which would provide a virulent infection with concomitant high parasitaemia has been successfully established in rabbits.

The tolerance of cattle to *T. vivax* and *T. congolense* was tested. N'dama cattle proved highly tolerant, zebu cattle had no tolerance while the zebu × N'dama cross occupied an intermediate position. Available evidence seemed to suggest that tolerance is an inherent quality

rather than a partial immunity following previous infection.

The trypanocidal action of certain drugs has been studied. Quinapyramine sulphate (antricyde methyl sulphate) was considered effective as a curative in a single dose of 5 mg./kg. against *T. vivax* and *T. congolense*. In the records of treatment of 128 dogs, mostly infected with *T. brucei*, only one death was reported. More than one dose was sometimes necessary to effect a cure.

Injection of quinapyramine ("antricyde prosalt") gave good results as a prophylactic except in the case of quinapyramine-resistant organisms.

Quinapyramine-resistance has been demonstrated and a strain of *T. congolense* has been rendered resistant to the sulphate by repeated subcurative doses. "Fading" of resistance is being studied.

Investigations were started on the effect of acquired immunity on the protective action of quinapyramine. Results led to the view that the protective action would be reinforced against infection with the homologous trypanosome strain.

Trials have been carried out with "528" chloride (a cinnolinium derivative). The drug was ineffective against *T. vivax* but had curative effect against *T. congolense*.

Ethidium bromide was tested against *T. vivax* and was found to have a curative effect with no toxicity, but it set up local reactions.

Tetracycline ("puromycin") was tested on laboratory animals. Results were of academic interest.—T. E. GATT RUTTER.

SOLTYS, M. A. (1955). Studies of resistance to *Trypanosoma congolense* developed by zebu cattle treated prophylactically with antricyde pro-salt in an enzootic area of East Africa.—*Ann. trop. Med. Parasit.* **49**, 1-8. 2337

Three groups of 6 cattle were kept in an enzootic area of *T. congolense* infection for 28 months, during which time all received prophylactic injections of quinapyramine ("antricyde pro-salt") every 2nd month.

During the subsequent 18 months Group A remained in the area and continued to receive antricyde, Group B remained in the area without receiving antricyde, and Group C, which likewise received no antricyde, was first removed for 10 months to a tsetse-free area and then returned to the enzootic area. None of these cattle developed natural infection and all resisted artificial infection by inoculation of blood infected with the local strain and with a strain from another district. Of 5 control animals all contracted infection in 3 weeks. Two were left

untreated and died. The remainder were treated with quinapyramine (antricyde) sulphate and recovered.

These results indicate that resistance to trypanosomiasis, acquired by exposure while protected by antricyde, continues when that protection is removed, and further that continued exposure is not necessary to the maintenance of resistance.

Serological tests revealed no antibody other than complement-fixing antibody in the resistant animals. The untreated control animals however, had both c.f. antibody and neutralizing antibody.—A.S.

BURDIN, M. L. (1953). Delayed toxicity in cattle following the use of trypanocidal phenanthridinium compounds.—*Proc. XVth Int. vet. Congr., Stockholm, 1953*. Part I. Vol. 1, pp. 491-495. Discussion: Part II. p. 268. [In English. French and German summaries.] 2338

In discussing B.'s paper, published in Part I of the *Proceedings* [V.B. **24**, 1239], A. A. Wilson referred to his own experiments on the toxicity of phenanthridinium compounds for dairy cows [V.B. **25**, 1319].—R.M.

PEEL, E. & CHARDOME, M. (1954). *Trypanosoma suis* — Ochmann 1905 — trypanosome monomorphe pathogène de mammifères, évoluant dans les glandes salivaires de *Glossina brevipalpis*, Newst., Mosso (Urundi). [*Trypanosoma suis*, a monomorphic pathogenic trypanosome developing in the salivary glands of *Glossina brevipalpis*.] —*Ann. Soc. belge Méd. trop.* **34**, 277-295. [In French. Flemish summary.] 2339

The authors studied the development of *T. suis* in the salivary glands of *G. brevipalpis*. They infected laboratory-bred mosquitoes by allowing them to feed on infected pigs. They observed transmission of the infection by mosquito to pig in one case.—A.S.

PEEL, E. & CHARDOME, M. (1954). Recherches sur l'éventualité d'une trypanosomiase héréditaire chez les animaux. [Study of possibility of placental transmission of trypanosomiasis in animals.] —*Ann. Soc. belge Méd. trop.* **34**, 367-369. [In French. Flemish summary.] 2340

The blood of one kid, a lamb, a few white mice and a kitten, born to parents with trypanosomiasis of the *T. congolense* group, was examined for the presence of trypanosomes with negative results.—M. L. CLARKE.

SIMITCH, T. (1955). Les leishmanioses en Yougoslavie. [Leishmaniasis in Yugoslavia.]

Bull. Off. int. Epiz. 43, 122-130. 2341

Kala-azar occurs in 8-10% of dogs in Dalmatia and in children up to 5 years of age. Although 500 cases were recorded among human beings in Serbia the condition was not reported in dogs. Of the species of *Phlebotomus* present, only *P. major*, *P. chinensis* var. *simici*, *P. tobbi* and *P. perfiliewi* transmitted the visceral condition and *P. papatasi*, the cutaneous.

—JAS. G. O'SULLIVAN.

ADLER, S. & HALFF, L. (1955). Observations on *Leishmania enriettii* Muniz and Medina, 1948. — *Ann. trop. Med. Parasit.* 49, 37-41. 2342

The authors inoculated g. pigs i/p or s/c at the base of the ear with a suspension of *L. enriettii* and noted the development of cutaneous lesions at the nares, vulva, fore- and hind legs, and the skin of the back. Depilation occurred at the site of the lesions. Transient infections were produced in mice by s/c inoculation of g. pig material.—A.S.

JĄSKOWSKI, I. (1954). Badania nad zarazą rzęsistkową. IV. Wartość testu śluzowego w rozpoznawaniu choroby. [*Trichomonas* infection in cattle. IV. Diagnosis by the mucus agglutination test.] — *Roczn. Nauk rol.* Ser. E. 66, 291-302. [English and Russian summaries. Abst. from English summary.] 2343

Mucus from 103 out of 265 cows infected with *Tr. foetus* was positive to the mucus agglutination test, as compared with 5 positive samples from 94 apparently healthy and uninfected cows. J. attributed negative results in infected cows to the following causes:—(a) dilution of antibody in mucus collected at the time of oestrus; (b) apparently subnormal production of antibody in cows with functional disorders of the oestrous cycle; (c) only 40% of pregnant infected cows reacted to the test. The test was positive in 80% of infected non-pregnant cows with a regular oestrous cycle.—R.M.

DÉOM J. & MORTELMANS, J. (1954). Sur la conservation en culture de *Trichomonas gallinae*. [Conservation of *Tr. gallinae* in culture.] — *Ann. Inst. Pasteur.* 87, 107-109. 2344

Tr. gallinae of the pigeon was maintained in modified Schneider medium for six months, being sub-inoculated every two days. The organism was isolated in a medium containing antibiotics.—E. J. L. SOULSBY.

PETROVIĆ, Z. (1954). [The biology of various species of *Trichomonas* in vitro.] — *Acta vet.*,

Belgrade. 4, No. 2, pp. 77-84. [In Serbian. Abst. from French summary.] 2345

P. studied *in vitro* the following aspects of *Trichomonas anseri*, *Tr. elongata*, *Tr. foetus*, *Tr. gallinae*, *Tr. intestinalis*, *Tr. microti*, *Tr. phasiani*, and *Tr. vaginalis*:—cultivation on artificial media; effect of antibiotics, sulphathiazole, and temperature on growth; longevity in distilled water; resistance to low temp.; resistance to solar radiation; host specificity. The addition of rice starch to the culture medium accelerated the growth of all species except *Tr. foetus*, *Tr. intestinalis*, and *Tr. microti*. *Tr. foetus* lived in distilled water for one hour, but *Tr. gallinae* survived for 24 hours. Whereas *Tr. foetus* and *Tr. elongata* were killed by exposure to the sun's rays for 12 min. at 45°C., *Tr. vaginalis* and *Tr. gallinae* were killed only after 90 min. exposure.—R.M.

COONEY, J. J. (1955). Phthalyl sulphacetamide in the treatment of bovine coccidiosis. — *Irish vet. J.* 9, 56-57. 2346

In cattle affected with coccidiosis, and treated *per os* with phthalyl sulphacetamide at a dosage rate of 3 g. per cwt. body wt. twice daily for 2 days, blood ceased to be present in the faeces and the consistency of the faeces became normal in an average of 2.2 and 4.7 days respectively. Details were given of 8 cases.—E. J. L. SOULSBY.

PELLÉRDY, L. (1954). Beiträge zur Spezifität der Coccidien des Hasen und Kaninchens. [Specificity of coccidia of hares and rabbits.] — *Acta vet., hung.* 4, 481-487. [In German. Russian summary.] 2347

P. recorded *Eimeria neoleporis* and other species of *Eimeria* from wild rabbits in Hungary. He described the pathological changes produced by *E. neoleporis*.

Attempts to transmit *E. exigua* of hares to rabbits failed, indicating that the *E. exigua* described from rabbits is distinct from the hare parasite.—E. J. L. SOULSBY.

GARDINER, J. L. & FARR, M. M. (1954). Nitrofurazone for the prevention of experimentally induced *Eimeria tenella* infections in chickens. — *J. Parasit.* 40, 42-49. 2348

The observations of these workers indicated that the administration of 0.0108% nitrofurazone in the mash for 5 to 10 days was of little benefit and that it was inconsistent in its effects upon *E. tenella*. When fed continuously for a 4-week period at this level the drug proved to be only slightly efficacious. When fed for 7 days at a level of 0.0216%, mortality was re-

duced and weight losses due to *E. tenella* were checked, but at this concentration the drug proved toxic.—S. BRIAN KENDALL.

LUX, R. E. (1954). The chemotherapy of *Eimeria tenella*. I. Diaminopyrimidines and dihydrotriazenes. — *Antibiot. & Chemother.* 4, 971-977. [Spanish summary p. 1019.] 2349

A number of 2,4-diaminopyrimidines and some of the structurally related dihydrotriazenes were screened for activity against *E. tenella* in chickens. In the course of the observations a good correlation was found between compounds showing anticoccidial activity and compounds known to possess significant antibacterial activity.

The synergistic effect of 2,4-diamino compounds on sulphonamides was demonstrated. Adequate control of a mild infection with *E. tenella* was observed using 0.005% 2,4-diamino-5-(*p*-chlorophenyl)-6-ethylpyrimidine and 0.005% sulphamerazine. Ordinarily 0.2% of sulphamerazine would be required.

—S. BRIAN KENDALL.

HOLZ, J. J. (1954). Elektronenmikroskopische Untersuchungen über die Wirksamkeit verschiedener Waschmittel auf die Oocysten einiger Coccidienarten. [Electron microscopy in the investigation of the action of some detergents on coccidial oocysts.] — *Tierärztl. Umsch.* 9, 415-419. 2350

A study of the action of lipolytic detergents on oocysts of *Eimeria*, using electron microscopy, revealed that the oocyst has two envelopes: an outer firm protective coat which was removed by the lipolytic materials, and an inner homogeneous semi-permeable layer which was not affected and resembled the erythrocyte membrane.

These substances might be of value for the control of *Eimeria* infection.

—E. J. L. SOULSBY.

CORRADETTI, A., TENTORI, L. & VEROTINI, F. (1954). Osservazioni sull' infezione da *Plasmodium berghei* in ratti tenuti a dieta latteata. [*Pl. berghei* infection in rats on a milk diet.] — *Riv. Parassit.* 15, 121-125. [English summary.] 2351

Using 62 rats, the authors were unable to demonstrate the suppression of *Pl. berghei* infection by a milk diet, which had been reported by other authors [*V.B.* 24, 1058, 1059].—R.M.

PRAT, J. (1954). Contribution à l'étude du diagnostic clinique de la piroplasmose chez

le chien. [Clinical diagnosis of piroplasmosis in the dog.]—*Bull. Soc. Sci. vét. Lyon.* 56, 155-170. 2352

P. reported an increase in the incidence of piroplasmosis in hunting dogs in the Allier department of France. The classical manifestations of the disease are not always in evidence and he mentioned two minor signs as aids in diagnosis. These are blanching and oedema of the scleroto-conjunctival margin and the passing of abnormally light or yellow coloured faeces. He presented several case histories; he stated that rheumatoid symptoms occur as a complication.—E. J. L. SOULSBY.

TAYLOR, J. I. (1954). East Coast fever in Uganda.—*Bull. epiz. Dis. Afr.* 2, 391-392. [In English.] French translation: pp. 429-430. 2353

The control method used is to achieve an immunity in the calves, and increase their vigour while reducing the numbers of ticks by spraying the cattle. In order to assist in the development of immunity, animals are not sprayed until they are a year old.

—JAS. G. O'SULLIVAN.

FLIR, K. (1954). Zur Toxoplasmosis des Hundes. [*Toxoplasma* infection in dogs.]—*Zbl. VetMed.* 1, 810-827. [English, French and Spanish summaries.] 2354

An account of 3 cases representing the acute, chronic and encephalitic forms of toxoplasmosis in dogs. F. described the gross P.M. findings and the histopathology of the lesions.

—E. J. L. SOULSBY.

BEVERLEY, J. K. A., SKIPPER, E. & MARSHALL, S. C. (1955). Acquired toxoplasmosis. With a report of a case of laboratory infection.—*Brit. med. J.* March 5th, 577-578. [Author's summary modified.] 2355

An account of toxoplasma infection in a human being resulting from a finger-prick sustained in the laboratory. After an incubation of 9 days a mild illness characterized by fever and lymphadenopathy resulted. The diagnosis was made by means of the dye test, which rose to a high titre (max. 1:4,200), but the organism could not be recovered by animal passage. The authors discussed other published cases of laboratory toxoplasma infection. The clinical features of these cases vary, but closely resemble those of the spontaneously acquired disease. One case terminated fatally.

WESTPHAL, A. & PALM, G. (1954). Latente Toxoplasmainfektionen im Tierversuch als diagnostisches Hilfsmittel. II. Anwendung der Methode bei klinischen Fällen und Unter-

suchungen zum mikroskopischen Parasiten-nachweis. [**Latent *Toxoplasma* infection in laboratory animals as a diagnostic aid. II. Application of the method to clinical cases and investigation into microscopic identification of the parasites.**—*Z. Tropenmed. u. Parasit.* 5, 61-80. [English summary.] **2356**

The authors used g. pigs and rats for the diagnosis of latent *T. gondii* infection in human patients. They gave suspect materials from various sources either intraperitoneally or by mouth to g. pigs known to be free from infection and later examined them for infection with *T. gondii* by the Sabin-Feldman test or by the c.f. test described by Westphal.—A.S.

GUSTAFSON, P. V., AGAR, H. D. & CRAMER, D. I. (1954). **An electron microscope study of *Toxoplasma*.**—*Amer. J. Trop. Med. Hyg.* 3, 1008-1021. [Authors' summary modified.] **2357**

The authors examined thin sections of toxo-

plasms and described morphological details not seen by other methods of microscopy. They described in particular the structure of the end-organelle, and some peculiar longitudinal inclusions associated with it. Such structures have not yet been described from other protozoa.

BRINGMANN, G. & HOLZ, J. (1954). **Die Bewegungsorganellen des *Toxoplasma gondii*.** [**The organs of locomotion in *T. gondii*.**]—*Z. Tropenmed. u. Parasit.* 5, 54-57. [English abstract.] **2358**

In electron-microscopic studies the authors showed that *T. gondii* possesses at one end a mouth-like structure, from the periphery of which arise numerous delicate interlacing fibrils which extend backwards against the cell surface, reaching two thirds of the way to the opposite end of the cell. They considered that these fibrils may have a locomotory function.

—A.S.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

WHITNEY, L. F., [Veterinarian; Clinical Instructor of Pathology, Yale University, New Haven, Connecticut.] & WHITNEY, G. D. [Veterinarian; Director, Whitney Veterinary Clinic, Orange, Connecticut.] (1953). **The distemper complex.** pp. viii + 219. Orange, Conn.: Practical Science Publishing Co. \$5.00. **2359**

This book deals with conditions such as Carré's disease, "hard pad" disease, "house dog disease", infectious hepatitis, pneumonia, tonsillitis, influenza, leptospirosis, coccidiosis, toxoplasmosis and salmon poisoning disease, all under the title of "The Distemper Complex". This is misleading as there is no relation between the above mentioned diseases except the first and second. Dual infection with, for example distemper and hepatitis or hepatitis and leptospirosis are not uncommon, but many cases of uncomplicated distemper, or hepatitis, or leptospira infection occur.

Much space is devoted to clinical aspects of the disease and to suggested forms of treatment.

However there is a comprehensive bibliography of the subjects covered.—W. MANSI.

GIROUD, P., GROULADE, P., ROGER, F. & DARTOIS, N. (1954). **Réactions positives vis-à-vis d'un antigène du groupe de la psittacose chez le chien, au cours de divers syndromes infectieux. [Serological reaction of dogs to a psittacosis antigen.]**—*Bull. Acad. vét. Fr.* 27, 309-311. **2360**

A disease in dogs, characterized by pulmonary, intestinal and nervous symptoms in addition to thermal reaction was studied. Serum of these animals gave a strongly positive reaction with antigens of the psittacosis group. This reaction was rendered negative when dogs were treated with chlortetracycline (aureomycin).—W. MANSI.

MIHAJLOVIĆ, S. & JAKŠIĆ, D. (1954). **Epizootija slinavke i šapa u Jugoslaviji—od 9-XI-1949 do 2-IV-1954 godine. [Foot and mouth disease in Yugoslavia during 1949-54.]**—*Vet. Glasn.* 8, 581-602. [In Croat. Abst. from English summary.] **2361**

F. & M. disease, introduced into Yugoslavia in 1949, was finally eradicated in April 1954. The authors described the course of the four main epidemics which occurred during this period, and the control measures adopted. Strict control of movement of persons, goods and animals into and out of infected places was imposed and, in the case of an initial outbreak, affected animals were slaughtered. Attempts were made to vaccinate all cloven-hoofed animals in districts surrounding each focus of infection. During the period in question a sum equivalent to \$5,800,000 was spent on control measures.—R.M.

RAMON, G. (1954). **Le système de prophylaxie de la fièvre aphteuse reposant sur l'application rigoureuse des règlements sanitaires, sur l'abattage et sur une convention sani-**

taire mondiale. Conclusion d'ensemble à une série d'études sur la fièvre aphteuse. [**Prevention of foot and mouth disease by veterinary police regulations, slaughter and international co-operation.**]—*Bull. Off. int. Epiz.* 41, 820-833. [In English pp. 834-845.] 2362

In bringing to a close a series of articles on F. & M. disease, which he began in 1951 at the outset of the great outbreak in Europe, R. concluded that the policy of slaughter accompanied by vigorous police measures has proved to be the only effective way of stamping out the disease. He emphasized the need for international co-operation against future outbreaks, and for research into the production of a cheap vaccine capable of producing polyvalent immunity of long duration. He gave references to his earlier articles.—A.S.

JOUBERT, L., GIRARD, H., MACKOWIAK, C., CAMAND, R. & GORET, P. (1954). Types et variantes du virus aphteux. Diagnostic épidémiologique, clinique et expérimental et conséquences prophylactiques. [**Types and variants of the virus of foot and mouth disease. Epidemiological, clinical and experimental diagnosis. Control and treatment.**]—*Rev. Méd. vét.* 105, Aug-Sept, 449-478. 2363

A conventional account of methods used in identifying types and variants of F. & M. disease virus, and of prophylactic measures.—A.S.

GEIGER, W. (1954). Die serologische Typendiagnose der Maul- und Klauenseuche. [**Serological diagnosis of the types of virus in foot and mouth disease.**]—*Mh. Tierheilk.* 6, 173-180. 2364

G. reported that in his work identifying F. & M. disease types by complement fixation and other tests on tongue epithelial material it was for various reasons only possible to type about 80% of cases. By examination of statistics he compared results obtained using young material with unburst vesicles, older material with burst vesicles, and samples of various weights. He concluded that if the official instructions advising the taking of samples of at least 4 g. of firm young epithelial material were more carefully followed, it would be possible to obtain positive results in 85% of cases.—A.S.

HANSON, R. P. (1954). The history of pseudorabies in the United States.—*J. Amer. vet. med. Ass.* 124, 259-261. 2365

H. gave an outline of the history of Aujeszky's disease in the U.S.A. References to "pseudorabies" date from 1813. Clinical

pictures given indicate that the disease was indeed the one that was confirmed as Aujeszky's disease by Shope in 1931 in cattle in Iowa. The virus, infective for pigs, is widespread in the Middle West. Transmission to cattle occurs through a skin wound and the infection is not passed from cow to cow.—W. S. MARSHALL.

SCHELLNER, H., HÄRTL, J. & OSTHOFF, F. (1954). Die Tollwut in Bayern in den Jahren 1951 bis 1954. [**Rabies in Bavaria from 1951 to 1954.**]—*Mh. Tierheilk.* 6, 241-248. 2366

The authors described the course of rabies in Bavaria from 1951-54, giving the numbers of infected wild and domestic animals sent for examination. They discussed the disease and its eradication in general terms.—A.S.

TRUMIĆ, P., KALIKIN, B. & BRAŠIĆ, V. (1955). [**Outbreak of rabies in cattle in Yugoslavia.**]—*Vet. Glasn.* 9, 29-31. [In Serbian. Abst. from French summary.] 2367

In an outbreak of rabies amongst cattle on summer pastures in the Deliblato region of Yugoslavia a wolf was apparently the source of infection. The outbreak lasted for 30 days, during which 10 out of 120 cattle were affected and died from rabies.—R.M.

GILLES, M. (1954). Les formes atypiques de la rage. [**Atypical forms of rabies.**]—*Maroc méd.* 33, 4-6. 2368

G. described a number of atypical forms of rabies in dogs, puppies, horses and cattle. He emphasized that rabies should be suspected when an animal dies a short while after biting someone.—A.S.

REMLINGER, P. & HADJI, A. (1954). La forme sommeillante de la rage à virus Flury chez le lapin. [**A latent type of rabies in rabbits caused by the Flury strain of virus.**]—*Arch. Inst. Pasteur. Algér.* 32, 198-199. 2369

[See also *V.B.* 25, 1977.]

The authors inoculated rabbits by various routes with Flury strain rabies virus passaged in g. pigs.

By the subcutaneous or intramuscular routes the virus produced no symptoms, but when inoculated intracerebrally or into the eye it produced a variety of symptoms in different animals. Some were unaffected: others developed recurrent convulsions at greater or lesser intervals: others died suddenly without symptoms, and others developed a general paresis leading slowly to death.

The authors were particularly interested in what they called the "sleepy" form of the disease. Rabbits affected with this form fell into

a dozy state and evinced no interest in food or their surroundings. They would move if obliged to do so, but otherwise remained dozing and motionless. They died after 2 or 3 days. P.M. findings were negative, but brain material, inoculated into g. pigs, produced typical paralytic rabies in 6 days.—A.S.

RAMON, G. (1954). La lutte contre la rage chez les animaux et chez l'homme. Mesures sanitaires et vaccination. [**Eradication of rabies in man and animals by police measures and by vaccination.**]—*Bull. Off. int. Epiz.* 41, 1011-1054. [English summary.] 2370

R. reviewed the rabies situation. He discussed the various control measures, including immunization, adopted by different countries and emphasized the necessity for quick energetic action. He considered that although vaccination played an important part in rabies control there should, in no circumstances, be any relaxation in the sanitary measures for the eradication of the disease from countries where it exists and for the protection of those countries which are free from it. He also discussed various methods of immunization including serotherapy.

The general incidence of rabies among animals was given in tabular form.

—T. E. GATT RUTTER.

WELLS, K. F. (1954). **Control of rabies.**—*Canad. J. comp. Med.* 18, 302-309. 2371

W. discussed the history of the disease. In Canada it has not developed into a threatening livestock disease until recent years. In 1947 a disease known to the Eskimos for many years was shown to be rabies. It spread to dogs and farm livestock, but has been brought under control in Southern Alberta. Vaccination is considered as an adjunct and does not replace absolute dog control.—R. GWATKIN.

SHIBANAI, T. *et al.* (1954). [**Clinical study of goat inoculated with rabies fixed virus.**]—*J. Jap. vet. med. Ass.* 7, 160-174. [In Japanese.] 2372

The clinical manifestations of rabies in goats resembled those in dogs and rabbits except for a slight difference in the incubation period and in the course of the infection. The blood picture differed only in that an increase in the leucocyte count and a temporary increase of monocytes occurred in the goats.—KOGI SAITO.

REMLINGER, P. (1954). Les principaux problèmes de la vaccination antirabique. [**The problems of immunization against rabies.**]—*Rev. Immunol.* 18, 322-338. 2373

R. discussed various methods of immuniza-

tion against rabies. He considered that the failures and the incidence of paralysis attributed to Pasteur's vaccine have been grossly exaggerated although, admittedly, the method is not yet perfect. With regard to new vaccines he expressed the opinion that it is too early to claim victory in the campaign against rabies and that the time is not yet ripe for radical changes in the methods of immunization of human beings and of animals.

—T. E. GATT RUTTER.

REMLINGER, P. BAILLY, J. & HADJI, A. (1955). Recrudescence générale de la rage. Vaccins Flury et vaccins phéniques dans la pratique vétérinaire. [**Avianized and phenolized anti-rabies vaccines in veterinary practice.**]—*Rec. Méd. vét.* 131, 5-15. 2374

The authors discussed the rabies situation and expressed the opinion that though Pasteur's vaccine still leaves room for improvement, it should not be discarded in favour of the more recent ones.—T. E. GATT RUTTER.

OSHIDA, T., SHIBANAI, D. & NAITO, S. (1953). [**Studies on dried rabies vaccine.**]—*Jap. J. vet. Sci.* 15, 185-195. [In Japanese. English summary.] 2375

The authors prepared a dried rabies vaccine from rabbit brain tissue infected with fixed virus. The material, after having been mixed with gum arabic (brain 1 : gum 0.5), was desiccated at low temperature and pulverized. This vaccine, even after storage for 3 years and 10 months, conferred satisfactory protection on mice and dogs against virus infection.

—KOGI SAITO.

NAGANO, Y., SHIBUKI, M., KITAMOTO, O. & OTANI, S. (1954). Vaccination antirabique par le vaccin irradié. [**An irradiated rabies vaccine.**]—*Rev. Immunol.* 18, 339-343. 2376

The authors compared irradiated and formolized rabies vaccine.

The minimum immunizing dose of irradiated fixed virus was, in experimental animals, smaller than that of formolized vaccine.

Irradiated vaccine was used on 4,000 persons, 337 of whom had been bitten by rabid dogs—15 about the head and 322 on the limbs. No deaths ensued.

Treatment by Pasteur's method was given to 460 persons bitten by rabid dogs. There were 7 deaths among 65 patients with head bites and 13 deaths among 395 with bites on the limbs.

The incidence of paralysis was lower with irradiated vaccine than with the standard vaccine.—T. E. GATT RUTTER.

WERNER, G. H. & SCHLESINGER, R. W. (1954).
**Morphological and quantitative comparison
between infectious and non-infectious forms
of influenza virus.**—*J. exp. Med.* **100**, 203-
216. 2377

When an infective non-neurotropic strain of influenza virus is inoculated intracerebrally into mice there follows a rise in the haemagglutinating titre of the brain tissue without a corresponding increase in infectivity titre.

The authors isolated virus particles from infected mouse brain by adsorption on to fowl erythrocytes, and discovered that the rise in haemagglutinating titre ran parallel with the multiplication of non-infective virus particles which closely resembled the "incomplete" influenza virus obtained by von Magnus [V.B. 22, 3084] following serial egg-to-egg transfer of undiluted infected allantoic fluid.

The non-infective particles from mouse brain, like the "incomplete" virus, were pleomorphic and rough. Standard infective influenza virus particles are round and smooth.

—A.S.

GOTTLIEB, T. & HIRST, G. K. (1954). The experimental production of combination forms of virus. III. The formation of doubly antigenic particles from influenza A and B virus and a study of individual particles of X virus to yield two separate strains. — *J. exp. Med.* **99**, 307-320. 2378

In continuation of previous work [V.B. 24, 2334] the authors inoculated A and B strains of influenza virus simultaneously into eggs, and noted that this resulted in the formation of a new virus having the antigenic properties of both parent strains. The haemagglutinin of the doubly antigenic new virus was inhibited by both A and B antisera, and the virus was neutralized by both sera. They inoculated eggs with limiting infective solutions of X virus and noted the percentage of mixed infections which resulted.

They suggested that doubly antigenic viruses are due to an effect known as phenotypic mixing, and that the ability of individual particles to give rise to two separate strains is due to heterozygosis or diploidy.—A.S.

ACKERMANN, W. W. & MAASSAB, H. F. (1954).
**Growth characteristics of influenza virus.
Biochemical differentiation of stages of development.**—*J. exp. Med.* **100**, 329-339. 2379

The authors studied the effects of two inhibitors, methoxine and α -amino- α -*p*-methoxyphenylmethanesulphonic acid, on the growth of influenza virus on chorioallantoic membrane *in*

vitro. The activity of the compounds was confined to specific stages of viral development.

—A.S.

ARCHETTI, I. (1955). **Appearances associated with filamentous forms of influenza viruses.**—*Arch. ges. Virusforsch.* **6**, 29-35. [In English.] 2380

In preparations of recently isolated influenza A virus, obtained from infected allantoic fluids, filamentous forms, occasional filaments which appeared to be segmenting into spheres, and large spherical bodies (150-500 m μ) usually in close association with filaments could be observed under the electron microscope in addition to the spherical virus elementary bodies.

—A. ACKROYD.

WEHMEYER, P. (1955). **Anomaly in electrophoresis of some virus-containing solutions.**—*Acta path. microbiol. scand.* **36**, 66-70. [In English.] 2381

In normal allantoic fluid, amniotic fluid, and allantoic fluid infected with influenza virus, electrophoresis reveals the presence of a light-adsorbing component which suddenly increases its mobility or splits off one or two components with higher mobility. If the components are purified before electrophoresis the phenomenon is shown only by virus infected fluids, and probably represents dissociation of virus particles from one another or from ovalbumin.

—A. B. PATERSON.

I. CHAMBERLAIN, R. W., SIKES, R. K., NELSON, D. B. & SUDIA, W. D. (1954). **Studies on the North American arthropod-borne encephalitides. VI. Quantitative determinations of virus-vector relationships.**—*Amer. J. Hyg.* **60**, 278-285. 2382

II. CHAMBERLAIN, R. W., KISSLING, R. E. & SIKES, R. K. (1954). **Studies on the North American arthropod-borne encephalitides. VII. Estimation of amount of Eastern equine encephalitis virus inoculated by infected *Aedes aegypti*.**—*Ibid.* 286-291. [Authors' summaries modified. For other parts in this series see V.B. 25, 1653, 1982 & 1983.] 2383

I. The authors described a quantitative method for assessing the efficiency of various mosquitoes as vectors of encephalitis viruses.

The method involved the determination of thresholds of infection, infection rates, and transmission rates for the mosquito species occurring in a given area.

The results of such laboratory studies, coupled with pertinent ecological data such as host preferences, seasonal distribution, relative abundance, and geographical distribution, en-

abled them to arrange the vector species of a given area in their order of importance.

Because the amount of virus required to infect different mosquito species varies, as do the virus concentrations in the blood of different potential mammalian and avian hosts, the infection threshold appears to be an important limiting factor in determining which species are natural vectors. Mosquitoes with lower thresholds can in theory find more hosts capable of infecting them.

Experimental data on Eastern and Western equine encephalitis in 23 species of mosquitoes support the proposed quantitative methods for the evaluation of vector potential.

II. Estimations of the amounts of virus inoculated by Eastern equine encephalitis-infected *Aedes aegypti* mosquitoes in terms of mouse intracerebral LD₅₀ were derived by a direct method and by several indirect methods in which the effects of a known dose of virus in several experimental animals were compared with the effects of allowing various numbers of mosquitoes to feed: from this the amount of virus inoculated by one mosquito during feeding could be roughly calculated. The data obtained suggested that while the majority of infected specimens inoculate minimal amounts during feeding, occasionally 1,000 to 10,000 mouse intracerebral LD₅₀ may be injected, and rarely 10,000 to 100,000.

HORVATH, B. (1953). Further studies on Col-SK virus hemagglutination.—*Arch. ges. Virusforsch.* 5, 228-236. [In English.] [Author's summary modified.] 2384

H. described a method for the purification of Col-SK virus which makes use of adsorption on and elution from sheep r.b.c. The ultra-violet absorption spectrum of Col-SK virus is characteristic of nucleoproteins. When large amounts of Col-SK virus were adsorbed on sheep r.b.c. the electrophoretic mobility of the latter was reduced; a 0.04% suspension of r.b.c. was used, with virus at a conc. about one tenth of that in crude brain extract. R.b.c. from which the virus had been eluted moved in the electrical field at the same rate as normal r.b.c.

NACHEV, B., NIKOV, S., LALOV, K., GABRASHANSKI, P., TODOROV, T., OGNANOV, D., STANKUSHEV, S., DIMITROV, S., NEDYALKOV, S., IVANOV, X., ZHELEV, V. & MLADENOV, Z. (1954). [Equine infectious anaemia in Bulgaria.]—*Izv. Inst. eksp. vet. Med., Sofia* 3, pp. 69-102. [In Bulgarian. German and Russian summaries. Abst. from German summary.] 2385

The authors, investigating illness amongst

horses in two localities, concluded that equine infectious anaemia has existed in Bulgaria since 1951. Their detailed account of clinical and pathological studies and of transmission experiments leaves no doubt as to the nature of the disease. No acute naturally-occurring cases of the disease were observed, and the virus appeared to possess a low virulence.—R.M.

NAKAMURA, R., SONODA, M., KIKUCHI, T., ITÔ, T. & SHINBAYASHI, K. (1954). [Therapeutic treatment of equine infectious anaemia. III. Using chloromycetin, aureomycin and nitromin.]—*Vet. Res., Japan* 1, 202-211. [In Japanese. English summary.] 2386

The following treatments were ineffective in horses naturally infected with equine infectious anaemia:—aureomycin (chlortetracycline) 25 mg./kg./day, given *per os* in 4 divided doses, for 10 days; chloramphenicol, 50 mg./kg./day, given similarly for 7 days; and "nitromin" (methyl bis (β-chloroethyl) amine oxide hydrochloride) 1 mg./kg./day, injected intravenously for 10 days.—KOGI SAITO.

TODOROV, T. & ZHELEV, V. (1954). [Equine virus abortion in Bulgaria.]—*Izv. Inst. eksp. vet. Med., Sofia* 3, pp. 103-119. [In Bulgarian. German and Russian summaries. Abst. from German summary.] 2387

In the past few years there have been severe losses from abortion in mares in Bulgaria. For example, in 1953 in the district of Rasgrad 200 mares aborted. The authors were able to infect mares with bacteria-free filtrates of blood from aborted mares and tissues from aborted fetuses. Eosinophile intranuclear inclusion bodies were present in the liver and bronchial epithelium. They concluded that the disease was identical with the virus abortion of mares described by Dimock *et al.* [*V.B.* 13, 1881 & 1882].—R.M.

BARTHA, A. & FEHÉR, D. (1954). Adatok a kancák virusokozta elvetélésének ismertetéhez. II. [Equine virus abortion. II.]—*Mag. állator. Lapja* 9, 400-404. [English and Russian summaries. Abst. from English summary. For part I, see *V.B.* 25, 1003.] 2388

The authors suggested that equine virus abortion may be controlled on an infected farm by dividing the horses into an "infected" group—positive reactors to the complement-fixation test—and an "uninfected" group, negative to the c.f. test. The daily measurement of body temp. should serve to detect fresh cases of infection in the "uninfected" group during intervals between c.f. tests. On one farm where

this method was carried out 25% of mares in the "infected" group aborted and there were no abortions in the "uninfected" group.—R.M.

HILSONT, P. & BOURDEREAU, C. (1954). Une enzootie pestique cryptogénétique sur des phacochères en captivité à Bamako (Soudan français). [An outbreak of rinderpest in wart hogs (*Phacochoerus aethiopicus*) in captivity.] —*Rev. Elev.* 7, 79-80. 2389

The authors described an outbreak of rinderpest in wart-hogs kept in an enclosure containing no other livestock. A captive herd of antelopes nearby was unaffected, and there was no known source of infection in the neighbourhood. The authors considered that the infection was probably introduced from a distance by vultures, which habitually frequented the enclosure at feeding times.—A.S.

DATTA, S. (1954). The national rinderpest eradication plan. —*Indian J. vet. Sci.* 24, 1-9. 2390

In field tests under Indian conditions the lapinized strain of rinderpest virus was used for the vaccination of 14,329 cattle, buffaloes, sheep and goats. It was found to be safe and conferred immunity over an experimental period of 41 months. D. suggested, however, that the use of this strain should be restricted, on grounds of economy, to the more susceptible breeds which could not safely be vaccinated with goat-adapted virus.—R. N. MOHAN.

HULIN, P. & LETROTEUR, R. (1954). Nouvelle technique de préparation du vaccin antipestique formolé-aluminé. [A new technique for preparation of rinderpest formol-aluminium vaccine.] —*Rev. Elev.* 7, 69-77. 2391

The authors described an emulsifying apparatus which they used in the preparation of formol-aluminium rinderpest vaccine. The virtue of the apparatus lay in the fine state of subdivision achieved. Coarser vaccines were improved by processing them in the emulsifier. —A.S.

ISHII, S. & TSUKUDA, K. (1952). [Studies on the adaptation of bovine strain rinderpest virus in chick embryo.] —*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo*. No. 25. pp. 29-36. [In Japanese and English.] 2392

A bovine strain of rinderpest virus was passaged in chick embryos with the object of attenuating it sufficiently for use as a live vaccine for Japanese black cattle. It was passaged for 158 generations but the virulence was still too high for Japanese cattle.—KOGI SAITO.

POPOVA-BATUEVA, L. V. (1954). [Treatment of pneumonia in calves.] —*Veterinariya, Moscow*. 31, No. 12. pp. 30-32. [In Russian.] 2393

The author claimed that lack of vitamins plays an important part in the aetiology of broncho-pneumonia in calves. She obtained the best therapeutic results by giving intramuscular injections of citrated blood from a healthy donor, to which both vitamins A and D had been added. She recommended testing of the blood of pregnant cows for the presence of calcium, phosphorus and carotene, followed by appropriate adjustment of their diet. She stated that prophylactic injections of blood and vitamins are beneficial for pregnant cows and for weak calves.—A. MAYR-HARTING.

MCINTOSH, B. M., HAIG, D. A. & ALEXANDER, R. A. (1954). Isolation in mice and embryonated hen's eggs of a virus associated with vaginitis of cattle. —*Onderstepoort J. vet. Res.* 26, 479-484. 2394

The authors described the isolation and cultivation of a virus, less than 100 μ in size, in the brains of mice and in chick embryos. The virus was obtained from the vaginal mucosa of a heifer manifesting symptoms of purulent vaginitis. Heifers infected with mouse and egg cultured virus developed mild vaginitis.

Insufficient evidence was available to associate this virus with that of infectious epididymitis and vaginitis of cattle.

WAGNER, A. R., GOLDSTEIN, H. E., DORAN, J. E. & HAY, J. R. (1954). Scrapie—a study in Ohio. —*J. Amer. vet. med. Ass.* 124, 136-140. 2395

Scrapie was diagnosed in Suffolk sheep from 5 different flocks in Ohio between November 1952 and March 1953. The diagnosis was based on history, clinical signs and histopathology of the brain and cervical cord.

—J. T. DONE.

SPAA, K. (1955). Schweinepest unter dem Schwarzwild in freier Wildbahn. [Swine fever in wild pigs.] —*Wien. tierärztl. Mschr.* 42, 41-44. [English, French and Italian summaries.] 2396

S. described how the appearance of swine fever on 3 farms where wild pig carcasses had been dressed for consumption led to the discovery of infection among the wild pigs of the district.—A.S.

IVANOV, X., PETRICHEV, M. & ZHELEV, V. (1951). [Morphological changes in swine fever with reference to diagnosis. I. Lesions

- in the liver.]—*Izv. Inst. eksp. vet. Med., Sofia*, 1, pp. 25-41. 2397
- IVANOV, X., ZHELEV, V. & TRIPHONOV, S. (1951). [Morphological changes in swine fever with reference to diagnosis. II. Lesions in the kidneys.]—*Ibid.* pp. 132-147. [In Bulgarian. German and Russian summaries. Abst. from German summaries.] 2398
- I. In swine fever 97% of the lesions were localized in the vascular endothelium; they consisted of an increase in phagocytic activity and haemosiderosis. Other sites were the reticulo-endothelial tissue and interstitial tissue. The parenchyma was rarely affected.
- II. The authors described zones of lymphocytic cell infiltration around the blood vessels, glomeruli, and tubules of the kidney which they considered to be diagnostic for swine fever: such lesions were present in 92 out of 183 cases of swine fever. Petechiae occurred more often, but were not of diagnostic value unless accompanied by the changes mentioned above or by typical lesions in other organs.—R.M.
- MATTHIAS, D. (1954). Das histologische Verhalten der Nebennieren bei der Schweinepest (mit besonderer Berücksichtigung der normalen Histologie der Nebennieren des Schweines). [Histological study of the adrenal glands in swine fever.]—*Arch. exp. VetMed.* 8, 226-262. 2399
- The first part of this paper is devoted to a detailed account of the normal histology of the adrenal glands of the pig, based on an examination of organs from 43 healthy slaughtered pigs. M. found that, as in the human adrenal gland, a large part of the cells of the cortex were in a resting state. The fat content of the cortex was very variable, but sudanophile fat was never present in the zona arcuata (zona glomerulosa). Areas of lymphocytic infiltration were a normal feature of half the glands examined. The medulla was rich in chromaffin substance, except in pigs subjected to electrical stunning.
- In the second part, W. described the histology of adrenal glands from 53 pigs experimentally infected with swine fever. The cortex exhibited changes typical of the stress syndrome. In 73% there was cellular infiltration of the medulla, characterized by a high proportion of eosinophile leucocytes. Chromaffin substance was almost absent. W. interpreted these findings as evidence of severe circulatory disturbance. He discussed the relationship between the adrenal gland lesions and lesions commonly found in other organs in swine fever.—R.M.
- PALLASKE, G. & KRETZSCHMAR, C. (1955). Zur pathologischen Anatomie und Differential-
- diagnose der Schweinepest mit besonderer Berücksichtigung des Seuchenzuges von 1952/54. [Pathology and differential diagnosis of swine fever with regard to the 1952-54 epidemic in Germany.]—*Berl. Münch. tierärztl. Wschr.* 68, 1-5 & 17-23. [English summary.] 2400
- Constant findings in swine fever included "turkey egg" kidneys, haemorrhages in the urinary bladder and in the pelvis of the kidney, and haemorrhagic lymphadenitis. Swine fever "buttons" were found only in chronic cases. The presence of splenic infarcts was considered pathognomonic. The authors laid great emphasis on the diagnostic value of encephalomyelitis which was revealed in most cases by histological examination.—W. G. SILLER.
- THORP, F., JR., GRAY, M. L. & DUNNE, H. W. (1954). A case of chronic hog cholera.—*Mich. St. Coll. Vet.* 14, 151-153. 2401
- A short account of lesions in unthrifty pigs with chronic swine fever, and of an experiment in which the disease was transmitted to a susceptible pig fed infective intestinal material, but not to another protected by antiserum.—A.S.
- OHBAYASHI, M. (1953). [Histopathological investigations on the natural cases of hog cholera.]—*Jap. J. vet. Sci.* 15, 197-210. [In Japanese. English summary.] 2402
- Histological examination of the lesions in 61 spontaneous cases of swine fever revealed a non-purulent panmeningoencephalitis in 58 cases and confirmed the presence of the typical vascular changes and parenchymatous degeneration of the lympho-reticular tissues. The author discussed the histogenesis and the pathogenesis of the disease and the diagnostic value of these lesions.—KOGI SAITO.
- BELL, W. B. (1954). Studies of the hog cholera virus II. The effect of nitrogen mustard on pathogenicity.—*Vet. Med.* 49, 111-112. 2403
- Virus isolated from the spleen of pigs at the height of temperature reaction to swine fever, and treated with nitrogen mustard, produced satisfactory immunity in other pigs, provided that the strain was of sufficient pathogenicity. Blood virus, similarly treated, gave variable results, sometimes producing infection, and sometimes no reaction.—A.S.
- SCHWARTE, L. H. & MATHEWS, J. (1954). Stability of hog cholera virus.—*Vet. Med.* 49, 375-376. 2404
- The authors examined the pathogenicity of a number of field strains of swine fever virus before and after passaging in susceptible pigs. Some of the viruses were stable with regard to

pathogenicity: others either gained or lost pathogenicity with passaging. They also observed the decrease in pathogenicity, over a 2-year period, of a strain of virus preserved by freeze-drying and storage at 4°C.—A.S.

FRENKEL, S., VAN BEKKUM, J. G. & FRENKEL, H. S. (1955). La culture du virus de la peste porcine dans le tissu splénique du porc, explanté en milieu liquide. [**Cultivation of the swine fever virus on porcine spleen tissue in a liquid medium.**]—*Bull. Off. int. Epiz.* 43, 323-326. [In French.] 327-330. [In English.] 2405

The authors described a method for the cultivation of swine fever virus in spleen tissue from healthy pigs, using a modification of Tyrode's medium.—T. E. GATT RUTTER.

MARKOVITS, P. & BÍRÓ, J. (1955). Kísérletek a sertéspestisvirus elszaporítására szövetenyészetben. [**Propagation of swine fever virus in tissue culture.**]—*Mag. állator. Lapja.* 10, 38-43. [English and Russian summaries. Abst. from English summary.] 2406

Pig tissues grew well in cultures of fowl plasma, to which pig embryo extracts and amniotic fluid from cattle were added. A strain of swine fever virus was propagated on such tissue cultures for 27 passages—R.M.

SASAHARA, J., HAYASHI, S., HIRASAWA, K., CHIKATSUNE, M. & IWASHINA, K. (1953). Study on crystal violet vaccine for hog cholera.—*Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27. pp. 81-100. [In Japanese and English.] 2407

Nine out of 116 pigs developed swine fever when challenged with 10,000 m.l.d. virulent virus 3 weeks after vaccination with 5 ml. swine fever crystal violet vaccine. Only 7 out of 37 were protected by formolized tissue vaccine when similarly challenged.—R.M.

BÜCK, G. & QUESNEL, J. J. (1954). Sur la paralysie contagieuse du porc (maladie de Teschen) à Madagascar. [**Infectious paralysis of pigs (Teschen disease) in Madagascar.**]—*Bull. epiz. Dis. Afr.* 2, 326-330. [In French.] [English translation: pp. 278-281.] 2408

The authors described the history of Teschen disease in Madagascar, where it has been present since 1946, or possibly earlier. Results of a small-scale vaccination project had been encouraging and they considered that when arrangements had been made to produce vaccine in bulk the disease would no longer be an important danger to the pig industry in Madagascar.—A.S.

DINTER, Z. (1953). Weitere Untersuchungen über die enzootische Viruspneumonie der Schweine in Schweden. [**Virus pneumonia of pigs in Sweden.**]—*Proc. XVth Int. vet. Congr. Stockholm, 1953. Part I*, Vol. 1. 343-345. [In German. English and French summaries.] 2409

In enzootic pneumonia of pigs in Sweden the virus infection has a slow onset and reaches a fairly high titre in the lung, remaining constant for at least a month. In artificially infected pigs the pneumonia is visible to the naked eye at the end of the second week. The persistence of the pneumonia is due to the persistence of the virus. In the rapid multiplication of the virus, enzootic pneumonia in pigs resembles 'grey lung' disease of mice and other rodents, described by Andrewes & Glover [*V.B.* 16, 2474] and might be aetiologically identical with the virus pneumonia of pigs in England, described by Betts [*V.B.* 23, 439].

—H. BEHRENS.

TAKAMATSU, Y., *et al.* (1954). [**Field application of Japanese B encephalitis vaccine in pigs for the prevention of virus still-birth.**]—*J. Jap. vet. med. Ass.* 7, 156-159. [In Japanese.] 2410

Every autumn, there is a high incidence of still birth in pigs in Japan.

The authors found in field tests that outbreaks of still birth could be prevented or the incidence reduced, by the use of a formolized Japanese B encephalitis vaccine, 2 or 3 injections being given to pregnant females, 2 months before parturition.—KOGI SAITO.

CABASSO, V. J., STEBBINS, M. R. & COX, H. R. (1954). Experimental canine distemper encephalitis and immunization of puppies against it.—*Cornell Vet.* 44, 153-167. 2411

Experimental results indicated that modified avianized dog distemper virus, alone or in combination with specific hyperimmune serum, can confer solid immunity on susceptible puppies against any virulent strains of the virus including encephalogenic strains when inoculated intracerebrally.—W. MANSI.

TENNISON, L. B., JR. (1954). Distemper encephalitis. — *Mich. St. Coll. Vet.* 15, 18-21. 2412

By whatever route the dog distemper chick-embryo propagated vaccine was introduced it was found to be safe. Vaccinated animals were protected, in short time, against the intracerebral inoculation of known encephalogenic

strains. There was no great difference in immunity produced by vaccine alone or when combined with specific hyperimmune serum.

—W. MANZI.

NAZAROV, V. P. (1954). [The distribution and role of secondary invaders in distemper in dogs.] — *Veterinariya, Moscow*. 31, No. 9, pp. 38-41. [In Russian.] 2413

Bacteriological examination of dogs and puppies that had died from distemper revealed the presence of secondary invaders, particularly in the lungs, but also in other organs. Some of these gave a high titre agglutination in the serum of convalescent dogs. N. stated that healthy dogs developed the typical picture of complicated distemper following inoculation by certain routes with cultures that had undergone only a few subcultures in the laboratory. In particular, *Bact. alkaligenes*, when inoculated intratracheally, led to a pneumonic form and streptococci to the nervous form; salmonella, given orally, led to the intestinal form of the disease. Cultures of the same organisms that had been maintained in the laboratory for some time, or that were given by some artificial method like subcutaneous or intracerebral injection, had hardly any effect. N. interpreted his results as due to the carrying of virus by the ordinary bacteria of the virus-infected dog. In one kennel the losses from distemper were reduced by the use of a formolized vaccine prepared from such secondary invaders, freshly isolated from dogs with distemper.

—A. MAYR-HARTING.

TENNISON, L. B. (1954). Vaccination of mink with distemper vaccine modified live virus, during gestation. — *Vet. Med.* 49, 294-295. 2414

T. immunized 59 female mink against distemper at various times immediately before and during gestation, and compared the size and health of the litters produced. There were no significant differences between the litters.—A.S.

I. GROULADE, P., ROGER, F. & DARTOIS, N. (1954). Contribution à l'étude d'un syndrome infectieux du chien répondant sérologiquement à une souche de *Rickettsia psittaci*. [An infectious disease of dogs related to psittacosis.]—*Rev. Path. comp.* 54, 1426-1433. Discussion: pp. 1433-1434. 2415

II. GROULADE, J., DRIEUX, H., GROULADE, P. & DRUFOVKA, B. (1954). Étude microphorétique sur papier et anatomo-pathologique d'un syndrome infectieux du chien répondant à une souche de *Rickettsia psittaci*. [A

psittacosis-like disease of dogs.]—*Ibid.* 1435-1441. 2416

I. The authors had previously commented on the failure of serum treatment in certain cases diagnosed as distemper, and considered it probable that some other infection was involved.

In this paper they reported the use of a c.f. test for *Rickettsia psittaci* infection on the sera of 188 dogs. Thirty-three were positive to the test, and negative to Q fever, *Toxoplasma*, *Lep-tospira* and *Brucella* antigens.

They discussed the symptoms seen in animals which were reactors to the test. In puppies, and occasionally in older dogs, there was acute disease, with pulmonary and digestive symptoms. There was also a subacute form, characterized in its early stages by lymphocytosis, digestive troubles and coughing, and in its later stages by fever and loss of weight. The chronic form was characterized by capricious appetite, poor general condition, and particularly by skin lesions on the abdomen and the internal aspects of the thighs. Chlortetracycline (aureomycin), administered by mouth or intravenously, was curative.

II. The authors carried out P.M. examinations on 11 dogs which were positive to the c.f. test [see I above], and examined their sera by paper electrophoresis. They noted congestion of the viscera, broncho-pneumonia with catarrhal alveolitis, necrosis of the small intestine, and activation of the reticulo-endothelial system in the liver and spleen.

Findings in the serum included an increase in β globulins, reflecting liver damage, and an increase in γ globulins resulting from the activation of the reticulo-endothelial system.—A.S.

WEYERS, H. (1954). Zur Klinik ansteckender Katzenkrankheiten. Katzensenke - Katzenstaupe. [Feline enteritis and feline distemper.] — *Berl. Münch. tierärztl. Wschr.* 67, 333-335. [English summary.] 2417

W. stated that after cat-shows feline enteritis and distemper are the most important diseases likely to occur in exhibited cats. He described the diagnosis and treatment of these diseases.—A.S.

MOULDER, J. W., MCCORMACK, B. R. S., GOGOLAK, F. M., ZBOVITZ, M. M. & ITATANI, M. K. (1955). Production and properties of a penicillin-resistant strain of feline pneumonitis virus.—*J. infect. Dis.* 96, 57-74. 2418

The authors produced a penicillin-resistant strain of feline pneumonitis virus by serial yolk-sac passage in the presence of increasing concentrations of benzylpenicillin. Resistance

reached a maximum after 34 passages, and was not diminished by 20 further passages in the absence of the antibiotic. The parent virus and the resistant virus grew at the same rate in the absence of penicillin, but when the antibiotic was present in sufficient quantity to protect the embryos against the parent virus the resistant virus still grew, though at half the normal rate, and killed all the embryos. They described the behaviour of the parent and resistant strains in the presence of chlortetracycline (aureomycin), oxytetracycline (terramycin) and chloramphenicol. From this and other work they considered that resistant viral strains resembled resistant bacterial strains in arising as spontaneous mutants favoured by the selective action of the antibiotic.—A.S.

ANON. (1954). **Myxomatosis again.**—*Med. J. Aust.* Oct. 16th, 635-636. 2419

A strong case is made for non-acceptance of the view that the rabbit menace in Australia is under control as a result of myxomatosis. The sporadic nature of suitable vectors, the strong possibility of the development in the rabbit of an intrinsic resistance to the disease, and the evidence of widespread attenuation of the virus in the field, substantiate the view that unless a vigorous rabbit extermination programme is conducted in conjunction with the release of myxoma virus the disease is liable to become less and less effective, resulting in a continued increase in the rabbit population.

—W. R. SOBEY.

EYCHENNE, & PÉRÈS. (1954). La myxomatose des rongeurs dans la vallée du Rhône. [**Myxomatosis of rabbits in the Rhône valley.**]—*Bull. Soc. Sci. vét. Lyon*. 56, 69-73. 2420

A brief account of an epidemic of myxomatosis in the Rhône valley during the summer and autumn of 1953. The disease was restricted to areas near watercourses and marshes. The authors considered that mosquitoes were responsible for the distribution of the disease, and commented that on certain islands, where rabbits were subjected to heavy mosquito attack, there had been a serious breakdown in the protection afforded by vaccination.—A.S.

RAMON, G. (1954). L'épizootie de myxomatose et ses enseignements. Étude épidémiologique, virologique et immunologique. [**The outbreak of myxomatosis and its lessons. Epidemiological, virological and immunological study.**]—*Bull. Acad. Méd., Paris*. 138, 92-97. 2421

A general account of the current outbreak

of myxomatosis in rabbits in France, and of recent experimental work on the virus and immunity to the disease.—R.M.

FENNER, F. & WOODROOFE, G. M. (1954). **Protection of laboratory rabbits against myxomatosis by vaccination with fibroma virus.**—*Aust. J. exp. Biol. med. Sci.* 32, 653-668. 2422

Two strains, the O.A. strain and Boerlage strain, of fibroma virus which are immunologically related to myxoma virus, were tested for their efficiency in protecting rabbits against virulent myxomatosis.

The O.A. strain afforded a rapid but temporary protection, whereas the Boerlage strain conferred a lasting immunity. The authors concluded that for practical purposes all rabbits over 14 days of age can be safely and effectively protected against myxomatosis by the inoculation of 10^3 I.D.₅₀ Boerlage fibroma virus. They described a method of preparing large batches of fibroma virus.—W. R. SOBEY.

PLÁCIDO DE SOUSA, C. (1954). Isolement, en partant des rats de Lisbonne, d'un virus neurotrope pour la souris. [**Isolation from rats in Lisbon of a neurotropic virus pathogenic in mice.**]—*C. R. Soc. Biol., Paris*. 148, 1705-1708. 2423

Extracts of faeces and large intestine of rats, caught near Lisbon, when injected intracerebrally into mice produced paralysis and death. The aetiological agent was a filtrable virus which could be passaged. Mice and cotton rats were susceptible, an encephalomyelitis being produced.

The virus is unrelated to the poliomyelitis group but is considered to belong to the Theiler viruses of mice; however it is not neutralized by Type G.D.VII serum.—E. J. L. SOULSBY.

DE BURGH, P. M. & MILLER, J. F. A. P. (1955). **Cellular control in virus infection.**—*Nature, Lond.* 175, 550. 2424

The authors studied the decrease in rate of cell division, and the increase in amount of cytoplasmic material, in the livers of mice infected with ectromelia virus. They discussed their findings in relation to the theory that the infecting particle has a controlling influence on the metabolism of the infected cell.—A.S.

SCHÄFER, W. (1953). Physikochemische und biologische Eigenschaften des Virus der klassischen Geflügelpest. Ein Beitrag zur Kenntnis tierpathogener Viren. [**Physico-chemical and biological properties of the classical fowl**

plague virus.] — *Mh. Tierheilk.* 5, 229-246; 267-286 & 316-331. **2425**

Classical fowl plague virus, purified by fractional centrifugation, was found to have a particle size of 70 m μ , with a molecular weight of 150×10^6 and an electrophoretic mobility of -4.5×10^5 cm.² sec.⁻¹ volt⁻¹ and a pH of 7. The virus was probably composed of a nucleoprotein with desoxyribosenucleic acid, lipoids and carbohydrates. A host-specific and a virus-specific soluble non-haemagglutinating antigen was recognized. During multiplication small haemagglutinating but non-infective particles were formed which were believed to represent an early "immature" stage of the virus. Animal inoculation tests constitute the most sensitive method of demonstrating the presence of the virus.—W. G. SILLER.

DE KOCK, G. (1954). Studies on the histopathology and pathogenesis of Newcastle disease of fowls in South Africa, with special reference to the lymphoid tissue. (A preliminary report.)—*Onderstepoort J. vet. Res.* 26, 599-620. Annexure pp. 621-629. [Author's summary modified.] **2426**

Newcastle disease, after intramuscular inoculation of virulent virus, was characterised by pathogenic lesions in the spleen, the gastrointestinal tract, and the nervous system.

In the spleen degenerative changes in the cells of the lymphoid sheath were noted in early deaths. In some of them flake-like granules were observed. There were depletion of lymphocytic cells in the follicle, increase in the number of plasmocytes, and proliferation of reticulum cells. In cases with a more protracted course, hyperplasia of the lymphoid tissue was apparent.

In the gastro-intestinal tract the chief changes were observed in the proventriculus, the small intestine, and caecal tonsils (Peyer's patches). In early cases, this was of the nature of a localized necrosis with haemorrhage. The changes in the lymphoid tissue were of a similar nature to those observed in the spleen.

The nervous system in the majority of cases revealed a hyperaemia, and in some, small haemorrhages. The changes in the small blood vessels were of the nature of a so-called "endotheliosis" with an infiltration of the walls with lymphocytes, and other cells of the blood. In some of these vessels the presence of plasma, mononuclears and red cells was noted within the lumen. In some cases chromatolysis and slight gliosis were seen.

More information is desired about the depots, morphology, and function of the lymphoid tissue of the fowl. It would, however,

appear that lymphocytes and plasmocytes have an independent origin, and that they are probably implicated in the propagation of the virus and antibody mechanism. At this stage it is not possible to indicate what the nature is of the flake-like granules in some of the cells of the lymphoid tissue. Further work is needed.

NITZSCHKE, E. (1954). Zur Frage des Vorkommens von Virusträgern und-spätausscheidern bei der atypischen Geflügelpest. [Occurrence of Newcastle disease carriers.]—*Berl. Münch. tierärztl. Wschr.* 67, 335-338. [English summary.] **2427**

N. described experiments, involving about 70 fowls, in which susceptible fowls were brought into contact with others which had recovered from Newcastle disease. None of the susceptible fowls contracted the disease, and the virus was not present in the organs of those which had recovered. These results were in line with those of other workers indicating that the carrier state is rare in Newcastle disease.—A.S.

BALDELLI, B. (1955). Sulla sensibilità dei cuccioli al virus di Newcastle. [Experimental infection of young puppies with Newcastle disease virus.]—*Vet. ital.* 6, 419-424. [English and French summaries.] **2428**

Puppies 2-5 days old were susceptible to the intracerebral inoculation of a strain of Newcastle disease virus. Nervous symptoms developed, and the virus was isolated from the brain of affected animals up to 10 days after infection. —R.M.

UPTON, E., HANSON, R. P., DOW, D. & BRANDLY, C. A. (1955). Intracerebral inoculation of mice with Newcastle disease virus.—*J. infect. Dis.* 96, 24-28. **2429**

The authors described the effects of the intracerebral inoculation of 16 strains of Newcastle disease virus into mice of various ages. For a given strain of virus signs of infection always appeared earlier in adult than in unweaned mice.—A.S.

WASSERMAN, B., YATES, V. J. & FRY, D. E. (1954). On so-called air-sac infection.—*Poult. Sci.* 33, 622-623. **2430**

The authors drew attention to confusion that has occurred between "air-sac infection" and "chronic respiratory disease" of fowls. They described the results of bacteriological examination and virus-isolation studies on 22 cases of the former disease. An organism of the *coli-aerogenes* group was isolated in pure culture from the viscera of 20 of these, while the other

2 yielded a staphylococcus in addition. Of the 14 which had respiratory symptoms when submitted for examination, infectious bronchitis virus was isolated from nine, the agent of "chronic respiratory disease" from two, Newcastle disease virus from one and two yielded negative results.—F.E.W.

PAPP, K. (1954). Contagion des virus à travers une conjonctive intacte. Rougeole, oreillons, rubéole.—[The conjunctival route of infection in virus diseases.]—*Rev. Immunol.* **18**, 380-390. **2431**

P. infected 5 out of 6 susceptible children with measles by instilling into the intact conjunctiva, saliva taken during the first 3 days of eruption. An attempt with lachrymal fluid failed. Instillation of infected saliva into the nasal mucosae produced measles in 2 out of 13 children after a prolonged incubation.

Mumps was transmitted through the conjunctiva in 2 out of 10 cases; painting of the buccal mucosae and tonsils was unsuccessful.

German measles (rubella) was instilled into the conjunctiva of 6 children. One developed the disease, the other had swelling of the tonsils and of the sub-maxillary glands without a skin rash.

Neither vesicle fluid nor saliva, instilled into the conjunctiva, set up chickenpox.

P. considered it highly probable that, owing to the mildness of the German measles and chickenpox epidemics under investigation, the virus content of the dose used (one minim of diluted saliva) was too low to set up diagnostic syndromes.

No local infections followed instillation of saliva into the conjunctiva.

—T. E. GATT RUTTER.

HERSHEY, A. D. & CHASE, M. (1953). Independent functions of viral protein and nucleic acid in growth of bacteriophage. — *J. gen. Physiol.* **36**, 39-56. **2432**

By means of osmotic shock produced by the rapid dilution of a briny suspending solution the authors disrupted particles of phage T2. Following this nearly all the phage sulphur was found to be present in material capable of precipitation by antiphage serum: DNA (desoxy-pentose acid) was released into solution in a form neither precipitable by antiserum nor adsorbed to bacteria. They deduced that the sulphur-containing protein of the phage particle forms a membrane which comprises the sole or principal antigenic material, and which is responsible for the attachment of the virus to bacteria.

They described further work indicating that

in the process of infection most of the phage sulphur remains at the cell surface and most of the phage DNA enters the cell: the properties of the sulphur-containing phage residue at the surface of the bacterial cell indicated that it consists, essentially, of unchanged phage particle membranes.

They concluded that the sulphur-containing protein of resting phage particles is confined to a protective coat which is responsible for adsorption to bacteria, and which functions as an instrument for the injection of DNA into the bacterial cell. Sulphur-containing protein probably has no function in the growth of intracellular phage. DNA does have a function in the growth of intracellular phage.—A.S.

SARAJEW, A. (1954). Cultivo de los ultravirus en simbiosis con microorganismos vegetales no patógenos. I. Cultivo del virus de la enfermedad de Newcastle. II. Cultivo del virus de la enfermedad de Newcastle y el de la influenza a bajas temperaturas. [Cultivation of Newcastle disease virus and of influenza virus in symbiosis with yeasts at low temperatures.] — *Bol. Ist. Invest. vet. Caracas* **6**, 1901-1964 & 1965-1971. [English and German conclusions.] **2433**

Following the work of Degkwitz (1927), who cultivated measles virus in the presence of certain pneumococci and streptococci, and Silber [*V.B.* **5**, pp. 629-630], who demonstrated that fowl pox virus lived and multiplied in yeast cells, S. cultivated Newcastle disease virus and influenza virus in yeast cells in liquid and solid culture media having a pH of 6-9. Cultivation succeeded only if the yeast was first adapted to the culture medium. Maximum multiplication of the virus was attained after 24 hours' incubation at 16° to 28°C. The yeast, containing the virus, was then transplanted to fresh medium. N.D. virus was passaged in this way 350 times; its virulence for fowls was lost after the first 25 generations, but it continued to immunize against virulent virus. Both viruses multiplied at 2.5° to 4°C. in yeast cells adapted to low temp. Mixed cultures of yeast and virus could be preserved for several months in the frozen state.—R.M.

BURNET, MACF. (1953). Virus classification and nomenclature. — *Ann. N.Y. Acad. Sci.* **56**, 383-390. **2434**

B. appealed for a start to be made on a system of classification of viruses. He argued that any system proposed would serve as a stimulus for improvement in classification and

that non-professional virologists would more easily be able to understand the science as a result.—W. S. MARSHALL.

BANDARANAYAKE, A. (1954). **Infectious keratoconjunctivitis of cattle.** — *Ceylon vet. J.* 2, 83-85. [Author's summary modified.] 2435

B. described an outbreak of keratoconjunctivitis, associated with *Rickettsia conjunctivae* in a herd of cattle. In experimental calves the organism set up a transient conjunctivitis. Common antiseptic eye lotions were found to be efficacious as therapeutic agents, if used before advanced clinical symptoms developed.

GERMER, W. D. (1954). Das Q-Fieber beim

See also absts. 2479-86 (avian erythromyeloblastic leukosis); 2615-8 (reports, Canada); 2634-5 (books, viruses).

IMMUNITY

JERNE, N. K. (1954). The "unit" in preference to the "titre" as a measure of agglutinating activity. — *Bull. World Hlth Org.* 10, 937-940. [French summary.] [Author's synopsis copied *verbatim*.] 2437

The agglutinating activity of individual sera is usually expressed by a "titre" notation, the titre being dependent on the degree of agglutination arbitrarily chosen as the end-point. This titre may be corrected by comparison with a standard serum. A "unit" notation, however, necessarily requires both comparative measurements in relation to a standard serum and the taking into consideration of all degrees of agglutination. This involves log-dose-response curves for the standard serum and the test serum; and cases in which the distance between such curves is not constant, either at different degrees of agglutination or where different antigen suspensions are used, will bring to light fundamental limitations of the bio-assay which the simple use of titres may not reveal.

MILES, A. A. (1954). The case for unit notation in specifying the agglutinating potency of standard antisera. — *Bull. World Hlth Org.* 10, 941-949. [French summary.] [Author's synopsis modified.] 2438

M. advocated the measuring of the agglutinating potency of standard antisera in terms of "units" instead of in terms of serum "titre".

MILES, A. A. (1954). Problems in the measurement of immunity and of the potency of immunizing agents. — *Fed. Proc.* 13, 799-807. 2439

M. discussed the problems and errors that arise in interpreting the immunological meaning of the LD₅₀, and the assay of immunising sub-

Meerschweinchen; ein Beitrag zur allgemeinen Infektionslehre bei einem nur intracellulär gedeihenden Erreger. [**Experimental Q fever in g. pigs.**]—*Arch. ges. Virusforsch.* 5, 336-344. 2436

Clinical, serological and histological studies in g. pigs infected with *Rickettsia burneti* revealed a generalized infection. Histological changes were particularly prominent in the spleen, characterized by severe reticulocytosis and oedema, and the testes, with marked regressive changes and complete cessation of spermatogenesis, at the height of the infection. Both these changes were reversible. The findings in certain other organs were less characteristic.—W. G. SILLER.

stances. Solution of the problems does not lie in the application of formal biometry, but in deciding on the scientific significance of what has been measured. The statistical significance of a result is no proof of its correctness. Probit-grids of host-parasite-antibody systems, and the indirect neutralization test in skin have proved to be useful in measuring immunity and the potency of immunizing substances and data from the latter can be subjected to a full analysis of variance.—A. ACKROYD.

JOHNSON, E. P., HANSON, R. P., ROSENWALD, A. S. & VAN ROECKEL, H. (1954). The responsibility of State and Federal agencies in the improvement of poultry vaccines.—*J. Amer. vet. med. Ass.* 125, 441-446. 2440

Improvement of poultry vaccines will necessitate better exchange of information, higher standards and revision of these, sound methods of evaluation of new products, and sharing of the financial commitments. State and federal agencies must share responsibility.

—F. R. PAULSEN.

PILLEMER, L., BLUM, L., LEPOW, I. H., ROSS, O. A., TODD, E. W. & WARDLAW, A. C. (1954). The properdin system and immunity: I. Demonstration and isolation of a new serum protein, properdin, and its role in immune phenomena. — *Science*. 120, 279-285. 2441

Treatment at 17°C. of human serum with zymosan, the insoluble residue from yeast cells after digestion with trypsin and extraction with water and alcohol, results in the zymosan combining in stoichiometric proportions in the presence of magnesium and complement with a

serum protein properdin to form an insoluble complex which is capable of inactivating the third component of complement at 37°C. but not at 17°C. Properdin will dissociate from the zymosan in a medium of high ionic strength and can be purified. It is a euglobulin and is found in serum Fraction III, is stable to heating at 48°C. but is slowly destroyed at 50°C., is not a component of the clotting or plasmin systems of blood, or of haemolytic complement, and is not necessary in specific immune systems, but participates in the bactericidal, virus-neutralizing and haemolytic activities of serum in the absence of specific antibody but in the presence of magnesium and complement. Its titre is highest in the serum of rats and lowest in that of g. pigs, man being intermediate. Total body irradiation reduces the properdin titre of rats' serum. Properdin may be important in natural immunity.—A. ACKROYD.

WIESNER, E. (1954). Beitrag zur Eiweissdifferenzierung im Rinderserum. [Differentiation of proteins in bovine serum.]—*Mh. VetMed.* 9, 384-387. 2442

W. described a method used in human medicine for the evaluation of α , β_1 , β_2 , and γ globulin fractions and claimed that he had used it successfully on bovine serum. The method involved the simultaneous interpretation of 2 serum coagulation tests, using calcium chloride and calcium sulphate respectively.—A.S.

EYQUEM, A. & PODLIACHOUK, L. (1954). Les groupes sanguins des chats. [The blood groups of cats.]—*Ann. Inst. Pasteur.* 87, 91-94. 2443

In the blood of cats, natural agglutinins occur at a titre of 1:16 to 1:32. Two main groups, A and B can be distinguished: group A was found in 85% of the cats examined, and group B in 15%. Antigens of groups C and D were sometimes associated with group B, but the groups O and AB were absent. Fifteen per cent of the individuals of each group were found to possess an iso-agglutinin against the other group. The authors presented briefly the factors which determine an increase in titre.

—A. SEAMAN.

PARASITES IN RELATION TO DISEASE [GENERAL]

ANON. (1953). **Malaysian parasites I-XV. Studies from the Institute for Medical Research, Federation of Malaya, No. 26.** [Edited by: AUDY, J. R.] pp. vii+242. Kuala Lumpur, Malaya: Institute for Medical Research. 2444

The Institute for Medical Research, Federation of Malaya, has become an active centre of biological research. It is intended that a series of studies will be published from the Institute gathering together information relating to various groups of external and internal parasites of man and animals in the Malaysian Region. Details of the extensive investigations made in Malaya will thus be available in one series of publications.

Emphasis has been laid upon the distribution of arthropod ectoparasites. Among the 15 papers which this volume contains are valuable reviews by J. R. Audy and J. L. Harrison of collections made in Malaya by the Colonial Office Scrub Typhus Research Unit and of trombiculid mites in the Asiatic Pacific area by J. R. Audy.

Several papers on trombiculid mites include two by J. R. Traub and J. R. Audy on Species of *Trombicula* and *Euschöngastia* from Borneo. J. L. Harrison reports on the feeding times of trombiculid mites.

In the helminthological field A. A. Sandesham contributes notes on the incidence of worm

infestations in common hosts and in Malayan aborigines. Two papers on trematodes are devoted to cercarial dermatitis and larval stages in snails.

For the specialist in the above fields a study of these papers by experienced authors is likely to be rewarding.—L. P. JOYNER.

ALTARA, I. (1955). Le problème des parasitoses animales en Italie. [Parasitic diseases of livestock in Italy.]—*Bull. Off. int. Epiz.* 43, 241-258. 2445

Echinococcosis is an important problem, the percentage infestation in animals varying in different parts of the country as follows:—cattle 4-31; sheep 15-52; goats 1-10; pigs 1-8. There were 700 human cases in one year. Fascioliasis is widespread, up to 80% of sheep in Central Italy being affected. Leishmaniasis in dogs is not common but in certain areas it is frequent in man. "Warbles" may be present in up to 25% of cattle: dimethyldiphenylene sulphide plus benzene hexachloride ("thiogamma"), applied as a powder, gave good results in Sardinia. Although not commonly reported, leptospira antibodies were detected in 35% of dogs in one survey. There are heavy losses in cattle from piroplasmosis and anaplasmosis while in central Italy a piroplasmosis in pigs due to *Babesia perroncitoi* is a problem.

—JAS. G. O'SULLIVAN.

MEDDA, A. (1954). Nuovo metodo di esame delle feci per la ricerca di uova di elminti e di oocisti di coccidii e di globidii. [A method of examining faeces for worm eggs and oocysts of coccidia.]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. 7, pp. 724-731. [French and German summaries.] 2446

See also abst. 2639 (book, parasitology).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

ZIELINSKI, A. (1954). Application de la phénothiazine comme larvicide dans le traitement des blessures infestées par les larves de mouches. [Phenothiazine in treatment of myiasis.]—*Bull. Agric. Congo belge*. 45, 1307-1310. [Flemish summary.] 2447

Z. stated that phenothiazine, applied to the skin, killed the larvae of *Chrysomia bezziana*.

—JAS. G. O'SULLIVAN.

SAVEL'EV, D. V. (1952). [An oily suspension of DDT in the control of the adult bot-flies *Hypoderma bovis* de Geer.]—*Mag. Parasit., Moscow*. 13, 103-111. [In Russian. Abst. from abst. in *Rev. appl. Ent. Ser. B*. 42, 69-70. (1954).] 2448

S. described experiments on the control of *H. bovis* by means of a spray consisting of 5% D.D.T. in solar oil, applied at various rates and intervals of time. Good control was achieved by a method in which the animals were sprayed from both sides with knapsack sprayers as they passed through a gate. Each animal received about 100 ml. of spray at each such treatment.

—A.S.

CHORLEY, J. K. (1954). Annual report of the Director of tsetse fly operations for the year ending 31st September, 1953.—*Rhod. agric. J.* 51, 343-354. 2449

The staff of the new branch, mentioned in last year's Report, consists of a Director, a Senior Entomologist, four Entomologists, 15 tsetse fly Rangers, a temporary field assistant, a clerk and a clerk-typist.

The tsetse fly position in the Urungwe and Mtoko districts was deteriorating. The demand for land free from tsetse fly was urgent owing to the immediate need of additional country for Africans moved from European areas.

A total of 27,481 head of game of all kinds was shot, this not including game shot by European hunting parties.

Data from district surveys are included in the report and charts showing the traffic control and the number of tsetse caught at the various control points are appended, along with maps of the district.—D. S. RABAGLIATI.

M. described a method for the detection of helminth ova and oocysts of coccidia and *Globidium* in faeces, based on their adherence to the vessel wall during sedimentation and their subsequent concentration by mercuric or potassium iodide.—E. J. L. SOULSBY.

FIEDLER, O. G. H., DU TOIT, R. & KLUGE, E. B. (1954). The influence of the tsetse fly eradication campaign on the breeding activity of glossinae and their parasites in Zululand.—*Onderstepoort J. vet. Res.* 26, 389-397. [Authors' summary modified.] 2450

In normal years the development of tsetse flies is influenced by parasitism and by exposure to sunlight. The effects of sunlight, influenced by geographical and vegetational factors, remain within certain limits, whereas the effects of parasitism show clearly defined fluctuations of a seasonal nature. In population studies of parasite and host the undulating graph of the parasite follows a quarter of a phase behind that of the hosts and the peak for the parasites occurs in October–November. If this natural cycle is disturbed, as by the campaign in Zululand, the host/parasite relationship is considerably disturbed.

The degree of efficiency with which a campaign is conducted is of the very greatest importance. In general it may be said that the direct effect of the insecticides D.D.T. and benzene hexachloride upon the host and the parasite is very marked. It may appear that at the commencement of a campaign the parasites are not severely affected, but this is not true. In the campaign in Northern Zululand, measures were begun at a time when the parasites were for the most part unassailable in the pupae of their hosts and yet the continued insecticide applications which followed caused wholesale destruction of the adult parasites, leading to their disappearance before the tsetse flies were themselves eliminated. As a general rule it may be said that as the number of parasites decreases, the surviving tsetse flies, which themselves are also decreasing, have an increasing chance of reproducing themselves unimpeded by parasitism.

The experience gained with *G. pallidipes* in the Hluhluwe Reserve before the use of helicopters had made efficient dusting possible showed that it was uneconomical and possibly dangerous, to attempt eradication with a means that was not entirely and rapidly effective.

During the period Oct. 1947 to Oct. 1948

the number of flies trapped per month was reduced to a fifth whereas the parasites were reduced to a tenth. This resulted in the relative percentage of flies emerging during the peak months of 1948 being twice as high as that during the previous year.

When the parasites have almost disappeared a very critical stage is reached in any campaign directed towards the eradication of tsetse flies by means of contact insecticides. Having reached this stage, those responsible for control should aim at complete elimination of the flies because, should operations cease when the flies have reached a very low density and the parasites have reached elimination point, a rapid increase in fly density is likely to occur by virtue of the absence of parasites, and this may jeopardize the entire undertaking.

For this reason a thoroughly efficient and extensive survey should be maintained for a considerable time after the apparent eradication of the fly, in order to detect possible survivors.

SCHUURMANS STEKHOVEN, J. H., JR., SILVA, I. I. & SAN ROMAN, P. (1954). Zur Biologie der Taubenlausfliege (*Diptera*, *Pupipara*). [Biology of *Pseudolynchia canariensis*.]—*Z. Parasitenk.* 16, 388-406. 2451

The authors reported that 56% loft pigeons examined in Argentina were infested with the fly *Ps. canariensis*. They studied the survival of flies following starvation, the digestive system and parasites of the flies, and the methods of sex differentiation.—E. J. L. SOULSBY.

EDDY, G. W., MCGREGOR, W. S., HOPKINS, D. E. & DREISS, J. M. (1954). Effects on some insects of the blood and manure of cattle fed certain chlorinated hydrocarbon insecticides.—*J. econ. Ent.* 47, 35-38. 2452

Hereford calves were given the following insecticides for 43-112 days, mixed with their food at the rate of 10-100 p.p.m.: technical benzene hexachloride (B.H.C.), lindane (γ -isomer of B.H.C.) the chlorinated naphthalene derivatives aldrin, dieldrin and chlordane, and toxaphene (chlorinated camphene). The blood from calves fed 100 p.p.m. lindane in the food

was lethal to *Siphona* (*Lyperosia*) *irritans* and *Stomoxys calcitrans*, but not to *Aedes aegypti* and *Cochliomyia* species. The faeces of lindane-dosed calves inhibited the development of larvae of *S. irritans*, but not of *Musca domestica*. Larvae of *S. irritans*, *St. calcitrans* and *M. domestica* failed to develop in the faeces of dieldrin and aldrin-dosed calves, but larvae of *M. domestica* developed normally in the faeces of calves dosed with B.H.C. (tech.), chlordane or toxaphene. Larvae of *Hypoderma lineatum* encysted normally in the skin of all the treated calves.—D. W. JOLLY.

LAVOPIERRE, M. M. J. & RIEK, R. F. (1955). Observations on the feeding habits of argasid ticks and on the effect of their bites on laboratory animals, together with a note on the production of coxal fluid by several of the species studied.—*Ann. trop. Med. Parasit.* 49, 96-113. 2453

The authors discussed the literature on host reactions to tick bites, and found that ticks could be divided into 4 groups according to the effects of their bites. They studied the feeding habits of *Ornithodoros moubata* and *O. tholozani* var. *typicus* on white rats and g. pigs, noting factors influencing readiness to feed; the mechanisms of feeding and disengagement of mouth parts following engorgement; damage and haemorrhagic reactions in the skin of the host, and the amount of blood ingested, and coxal fluid passed, by the ticks. They discussed their findings.—A.S.

MARETIĆ, Z. & STANIĆ, M. (1954). The health problem of arachnidism.—*Bull. World Hlth Org.* 11, 1007-1022. [French summary.] 2454

The authors described 180 cases in human beings of toxic effects following the bites of *Latrodectus* spiders. Hyperimmune antiserum from rabbits and sheep was curative. In attempts to immunize horses it was found that they were extremely sensitive to the toxin. The authors discussed experiments in which they produced immunity in mice by use of immune serum from a wether.—JAS. G. O'SULLIVAN.

See also absts. 2382-3 (arthropod-borne encephalitis).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

WONG, L. W. (1954). Some factors affecting the intensity of *Euhaplorchis californiensis* (Trematoda: Heterophyidae) infections in chicks.—*J. Parasit.* 40, 414-418. [Author's summary modified.] 2455

Chicks which were fed oatmeal were found

to harbour more adult *E. californiensis* than those fed an all-purpose chick feed. Birds which had access to food at all times were less prone to infestation. Heavy infestations developed in chicks which were fed an oatmeal diet and fasted for 5 to 10 hours after the feeding of metacercariae.

Fewer adult flukes were found in milk-fed chicks than those fed oatmeal.

SWART, P. J. (1954). The identity of so-called *Paramphistomum cervi* and *P. explanatum*, two common species of ruminant trematodes in South Africa.—*Onderstepoort J. vet. Res.* 26, 463-473. 2456

S. suggested that the species previously known in South Africa as *P. cervi*, and *P. explanatum*, should be reclassified as *P. microbothrium*, and *Calicophoron calicophoron* respectively. The identification of these species was based upon a microscopic examination of the acetabulum, the genital atrium, and the pharynx, as seen in medial sagittal sections; he gave illustrations of examples of these. He listed 11 references.—D. W. JOLLY.

VARMA, A. K. (1954). Studies on the nature, incidence, distribution and control of nasal schistosomiasis and fascioliasis in Bihar.—*Indian J. vet. Sci.* 24, 11-33. 2457

The author surveyed the incidence of schistosomiasis and fascioliasis in domestic animals in the State of Bihar, India, in relation to topography and climate. Older cattle, particularly males, were often infested with *Schistosoma nasale* and so acted as carriers. The most common species of *Fasciola* in the area was *F. indica*, a new species which the author has previously described [*V.B.* 24, 3543].

He discussed control measures for these infestations, and stressed that not enough work had been done on the ecological aspects of the snail vectors, and their relationships with the parasites. He also described two new cercariae found in the snail *Indoplanorbis exustus*.—R.M.

KUHLOW, F. (1953). Bau und Differentialdiagnose heimischer Diphylobothrium-Plerocercoiden. [Structure and diagnosis of plerocercoids of *Diphylobothrium*.]—*Z. Tropenmed. u. Parasit.* 4, 186-202. [English summary.] 2458

K. examined nearly 3,000 fish of 16 species, caught in the lower Elbe, and found in them plerocercoids of 4 species of *Diphylobothrium*. He identified the species by raising them to the adult stage in various avian and mammalian hosts. He stated that, with regard to shape, and to the development and arrangement of cuticular bristles, cutaneous and parenchymatous muscles, and frontal glands, there were clear differences between the 4 species at the plerocercoid stage.—A.S.

MATOFF, K. & JANTSCHKEFF, J. (1954). Kann *Echinococcus granulosus* im Darm des Fuchses (*Canis vulpes*) sich zur Geschlechts-

reife entwickeln? [Failure of *E. granulosus* to reach maturity in the intestine of the fox.]—*Acta vet., hung.* 4, 411-418. [In German. Russian summary.] 2459

In a study of the possible role of wild carnivores as hosts of *E. granulosus* the authors administered fertile scolices by mouth to 16 foxes. No mature adult tapeworms developed in these foxes, and they concluded that this animal played no part in the dissemination of echinococcus.—E. J. L. SOULSBY.

FANKHAUSER, R. (1955). *Coenurus cerebralis* beim Rind. [*Coenurus cerebralis* in cattle.]—*Schweiz. Arch. Tierheilk.* 97, 16-30. [English, French and Italian summaries.] 2460

F. reported *C. cerebralis* infestation in an ox in Switzerland. He gave details of the clinical manifestations and of the gross and microscopic lesions.—E. J. L. SOULSBY.

KUHLS, R. (1953). Zinn in der Bandwurmtherapie. [Tin for the treatment of tapeworm infestations.]—*Med. Klinik.* 48, 1511-1514. 2461

"Cestodin" tablets, which contain metallic tin, tin oxide and tin chloride, are very effective for the treatment of tapeworm infestations in man. The tablets must be taken three times a day for 5 days.—H. BEHRENS.

KOTTER, L. & DEGENKOLB, E. (1954). Über die Bedeutung des Dunkelfeldes für die Trichinenschau. [Dark field microscopy for the demonstration of *Trichinella*.]—*Zbl. VetMed.* 1, 479-493. [English, French and Spanish summaries.] 2462

The authors recommended the use of dark field microscopy in the diagnosis of trichinella infestation, and described methods of achieving satisfactory results even with thick slides and low-power magnification.—A.S.

BELL, E. J. (1955). Experiments to determine the longevity of the larval stage of *Dictyocaulus viviparus* on pasture.—*Trans. R. Soc. trop. Med. Hyg.* 49, 12. 2463

Larvae of *D. viviparus* survived the winter in West Scotland, young susceptible calves having become infested after grazing plots heavily contaminated 11 months previously. Infestation occurred in a group of calves after they were fed grass grown in pots and contaminated with faeces up to 9 months earlier.

—M. L. CLARKE.

THOMSEN, E. (1953). Beitrag zur Behandlung der Lungenwurmerkrankung des Rindes unter Verwendung von Äther-Toluol, Merckojod und Kalium picronitricum. [Control of

lungworms in cattle with toluol ether, with a proprietary suspension of colloidal iodine and a trinitro phenol-potassium compound.]

—*Inaug. Diss., Hanover.* pp. 74. 2464

T. studied 77 cases of lungworm infestation in cattle and found that housing and improved feeding were primarily essential for recovery, and that the drugs tested were of little value.

—E. J. L. SOULSBY.

LAGRANGE, E. (1954). Recherches experimentales sur *Uncinaria stenocephala*, Railliet, 1884. [Experimental study of *U. stenocephala* infestation in dogs.]—*Riv. Parassit.* 15, 151-159. [In French. English and Italian summaries.] 2465

L. estimated that 23% of dogs in Belgium were infested with *U. stenocephala*, but that symptoms seldom developed. Dogs protected from re-infestation eliminated most of the worms within 4 months, without anthelmintic treatment. Eggs survived exposure to temperatures from -3° to $+3^{\circ}\text{C}$. for several days. Larvae were killed within 24 hours by 1:10,000 solutions of iodine or nicotine.—R.M.

BREMNER, K. C. (1954). Cytological polymorphism in the nematode *Haemonchus contortus* (Rudolphi 1803) Cobb 1898. [Correspondence.]—*Nature, Lond.* 174, 704-705. 2466

Examination of the chromosomes of *H. contortus* revealed specific differences between the specimens obtained from sheep and those from cattle. In experimental infestation of sheep with worms of differing types some hybridization occurred, but this has not been observed in natural infestations.

—E. J. L. SOULSBY.

BETTS, A. O. (1954). *Ascaris lumbricoides* as a cause of pneumonia in pigs. — *Vet. Rec.* 66, 749-751. [Author's summary modified.] 2467

It is popularly believed that migrating larvae of *A. lumbricoides* are responsible for the pneumonia of the dependent parts of the lungs commonly observed in pigs, and for the persistent coughing associated with it. Evidence of the presence of *A. lumbricoides*, however, was found in only 3 of 18 herds manifesting this syndrome. At bacon factories the incidence of adult *Ascaris* in the intestines of pigs was found to be low, and their presence bore no apparent relation to the presence or absence of pneumonia in the host.

To investigate whether *A. lumbricoides* could in fact cause pneumonia of the type popularly attributed to it, six pigs, known to be free

from virus pneumonia, were each dosed with 250,000 to 500,000 infective embryonated *Ascaris* eggs and the clinical symptoms which followed were noted. These were quite different from those popularly ascribed to the natural condition. The pigs were killed at various intervals after dosing and although haemorrhages were abundant throughout the lung substance of the pigs killed on the 5th, 7th and 10th days, there was no sign of lobar pneumonia. The lungs of the two pigs killed 21 days after dosage were macroscopically normal. In all 6 pigs the main site of damage was in the liver. These results support the view that many of the cases diagnosed in the field as "ascaris pneumonia" are in fact infections with virus pneumonia.

GERMANS, W. (1954). Laboratoriumsuntersuchungen über die Resistenz der Eier des menschlichen Spulwurmes *Ascaris lumbricoides* L. [Resistance of the eggs of *Ascaris lumbricoides*.] — *Z. Parasitenk.* 16, 93-110. 2468

Eggs of *A. lumbricoides* can be destroyed by drought, ultra-violet rays and high temperatures ($+37^{\circ}\text{C}$.). Phenol and carbon disulphide kill the eggs within a short time but are unsuitable for use in the field. Methane gas, which is produced from sewage has a destructive effect. n/10 NaOH removed the mucous layer and thereby caused desiccation. The modern detergents effectively remove the eggs which adhere to vegetables and fruit.—H. BEHRENS.

TAYLOR, E. L. (1955). Parasitic helminths in mediaeval remains. — *Vet. Rec.* 67, 216-218. 2469

T. reported the finding of eggs of *Trichuris trichiura*, *Ascaris lumbricoides* and *Dicrocoelium dendriticum* in faecal accumulations at the bottom of a pit unearthed during archaeological excavations at Winchester. In spite of the age of the material, which by the evidence of associated pottery fragments must date back to the 11th or 12th century, the shells of the eggs were sufficiently well preserved to be easily identified.

He discussed possible origins of the eggs, noting that the species concerned were suggestive of a porcine origin. The structure of the pit, however, was in keeping with the idea that it was the latrine of some institution such as a prison or a madhouse.

In either case, he pointed out, the presence of eggs of *D. dendriticum* must give rise to speculation as to their origin, as this species is now confined, in Britain, to certain areas in the far north.—A.S.

BOCH, J. (1954). Histologische Untersuchungen der Dünndarmschleimhaut nach Verabreichung von Vermizym zur Wurmbekämpfung. [Histology of the mucosa of the small intestine, following administration of "vermizym", a proteolytic enzyme anthelmintic.]—*Berl. Münch. tierärztl. Wschr.* 67, 365-367. [English summary.] 2470

Therapeutic dosage (1 g./kg.) with the proteolytic enzyme anthelmintic "vermizym" caused no damage to the intestinal mucous membrane in mice, cats, and rabbits.—R.M.

DUNN, T. L. (1955). Effect of piperazine derivatives on certain intestinal helminths.—*Lancet*. 268, 592-593. 2471

Of 3 piperazine drugs tested, piperazine adipate was the most effective against *Ascaris lumbricoides* and *Trichuris trichiura* in children, and caused no toxic reactions. The drugs were not effective against *Necator* nor against *Hymenolepis*.—M. L. CLARKE.

GORDON, R. M. & WEBBER, W. A. F. (1955). A new technique for the concentration of microfilariae from the venous blood, and its application to their detection in persons harbouring them in low density; together with observations on the significance of such low densities.—*Ann. trop. Med. Parasit.* 49, 80-94. 2472

The authors discussed methods of concentrating microfilariae in blood samples, and described a method they had developed for demonstrating these organisms when present in small numbers. The blood sample was diluted, formalized to fix the microfilariae, and then passed through a fine mesh wire filter. After resuspension and centrifuging the worms could be examined in a simple wet preparation if it was merely required to establish their presence, or a stained preparation could be made if identification was necessary. They found the test useful in an investigation of *Loa loa* and *Acanthocheilonema perstans* infestations in the population of a hyperendemic area of West Africa. —A.S.

DUDDINGTON, C. L. (1954). Nematode-destroying fungi in agricultural soils. [Correspondence.]—*Nature, Lond.* 173, 500-501. 2473

A survey of 49 samples of soil from various parts of England was made for nematode (eelworm)-destroying fungi, of whose presence 82 records of 19 different species were made. D. discussed the list of identified species observed; *Arthrobotrys oligospora* (present in 21 samples) and 'Mycelium 186' (in 18) were the most frequently recorded species.

—C. A. E. BRIGGS.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

KRAHNERT, R. (1954). Lungenkrebs der Tiere. [Lung cancer in animals.]—*Dtsch. tierärztl. Wschr.* 61, 449-451. 2474

K. discussed, no references being given, recorded cases of lung cancer in animals, and pointed out differences with regard to localization, type, and incidence, and so on, as compared with human lung cancer.—E. COTCHIN.

BURGER, C. H. (1955). Beta radiation therapy of an equine ocular neoplasm.—*N. Amer. Vet.* 36, 371-373. [Author's summary slightly modified.] 2475

Beta radiation of approximately 2,500 r.e.p. (roentgen equivalents physical) proved effective in a divided dose in destroying two neoplasms of the orbital area in a white horse. At this conservative level, transient erythema was produced.

HONEKER. (1954). Geschwülste bei Ziegen. [Tumours in goats.]—*Dtsch. tierärztl. Wschr.* 61, 427-429. 2476

H. reported a reticulosarcoma of the liver

and a lymphosarcoma of the precardiac mediastinum, in two female goats, 4 and 5 years old respectively.—E. COTCHIN.

FERRI, A. G. & STOPIGLIA, A. V. (1952). Localização extra-genital do tumor de Sticker. [Venereal granuloma in dogs; extra-genital localization.]—*Rev. Fac. Med. vet., S. Paulo*, 4, 585-594. [English summary.] 2477

A granuloma in the right eye of a 5-year-old foxhound was removed surgically. Secondary tumours formed in the frontal and parotid regions and in the orbit, and the animal eventually died. The tumour was transmitted to a second dog by inoculation into the vaginal mucosa.—I. W. JENNINGS.

JACKSON, C. (1954). Studies in comparative neuropathology. I.—Gliomas of the domestic fowl: their pathology with special reference to histogenesis and pathogenesis; and their relationship to other diseases.—*Onderstepoort J. vet. Res.* 26, 501-592. Appendix pp. 593-597. 2478

The opportunity to study 146 cases of intracranial lesions in the fowl, including 120 intracranial tumours of which 109 were gliomas, enabled the author to submit a comprehensive monograph on this subject, illustrated by 84 figs., two in colour. This should be consulted in the original by those interested but among the more important conclusions were:— The commonest avian gliomas are comparable in cytology with spongioblastoma multiforme of man rather than with astrocytoma. The lesions studied included examples of presumably the earliest gliomas hitherto observed in any species and these were seen to arise from foci of a disseminated perivascular encephalitis. The latter lesions are present in most cases of glioma and all possible gradations to neoplasms can be followed. Further the growth and spread of these tumours occur largely by conversion of chronically inflamed brain tissue at their margin. "The theory of origin of gliomas from embryonal cells which recapitulate their ontogenetic ancestry by differentiation towards adult cell types is false in the case of gliomas of birds. These gliomas on the contrary arise from previously *adult cells* which *de-differentiate* into more primitive cells—a recapitulation in reverse order of their embryonic ancestry". J. described a single case of classical astroblastoma and presented some evidence indicating that haemangioblastomas of the fowl's brain may also arise from the described encephalitic lesions and even that lymphocytomatous neoplasms may arise from related meningo-encephalitic foci. He drew attention to the occurrence of peculiar concomitant liver neoplasms in some cases of avian gliomatosis, including the well-known but puzzling case of Fox (1912). Problems of the characteristic pigmentation of avian glioma and of probable mucopolysaccharide secretion by the neoplastic glia cells received attention. The multiplicity of avian gliomas is primary and not due to spread *via* the cerebrospinal fluid etc. J. speculated on the pathogenesis of this brain pathology; he suggested that avian glioma is a response to some noxa which continues to spread in advance of the tumour and preliminary accounts of this have been previously published, [*e.g.* *V.B.* 19, 534].

MOMMAERTS, E. B., SHARP, D. G., ECKERT, E. A., BEARD, D. & BEARD, J. W. (1954). **Virus of avian erythromyeloblastic leucosis.**
I. Relation of specific plasma particles to the dephosphorylation of adenosine triphosphate.
 —*J. nat. Cancer Inst.* 14, 1011-1025. 2479
 SHARP, D. G., MOMMAERTS, E. B., ECKERT, E. A., BEARD, D. & BEARD, J. W. (1954).

Virus of avian erythromyeloblastic leucosis.
II. Electrophoresis and sedimentation of the plasma particles and the enzyme dephosphorylating adenosine triphosphate.—*Ibid.* 1027-1037. 2480

ECKERT, E. A., SHARP, D. G., MOMMAERTS, E. B., REEVE, R. H., BEARD, D. & BEARD, J. W. (1954). **Virus of avian erythromyeloblastic leucosis.** **III. Interrelations of plasma particles, infectivity and enzyme dephosphorylating adenosine triphosphate.**—*Ibid.* 1039-1053. [Authors' summaries modified.] 2481

I. Studies were made of the relationship of the enzymatic dephosphorylation of adenosine triphosphate and the concentration of the specific particulate component of plasma samples from chicks with avian erythromyeloblastic leucosis. The results with plasma from chickens 19-31 days old revealed a close proportionality between the enzyme and the particles. The relation was more variable with those samples of plasma of low particle content in which particle counting was most difficult, but became progressively closer with increase in the number of particles. Samples from chickens, 34-80 days old, yielded results of wider variation in some instances. There was no major difference between the relationships observed in the presence of added calcium, which activates the enzyme, and those where no calcium was added. These findings demonstrating the proportionality of the enzyme and the particles in their development in the plasma of chickens during the onset of the disease provide a strong point of evidence that the enzymic activity may be an intrinsic property of the particles.

II. Studies were made on the electrophoresis of the enzyme dephosphorylating adenosine triphosphate and of the specific particulate component in the plasma of young chicks with erythromyeloblastic leucosis. In the Tiselius apparatus, both enzyme and particles migrated to the anode at essentially identical rates in 9 experiments at the pH levels of 8.5, 7.5, 6.5, and 6.0. The greatest difference in the average rates of migration of the two materials was 7% in one experiment, and no greater than 3% in the remaining groups. The rate of migration of these particles progressively decreased from $-4.5 \times 10^{-5} \text{ cm}^2 \text{ sec}^{-1} \text{ volt}^{-1}$ at pH 8.5 to -3.4 at pH 6.0, and of the enzyme from -4.5 to -3.5 over the same pH range.

Ultracentrifugation of similar plasma specimens showed that the particles could be sedimented from the portion of the suspension tested in 63 min. and the enzyme activity in 68 min., a difference that was not significant.

The results were interpreted as showing that the enzyme activity is carried by particles of the same sedimentation characters as the specific particulate component and that the two are inseparable by electrophoresis. Earlier work had shown that the two attributes occur simultaneously and proportionally in the plasma of young chicks developing the disease, and that the particles and enzyme remain associated in the centrifugal purification of the specific particles. These consistent correlations have led to the conclusion that the enzyme is a part or a function of the particulate component.

III. In studies on the relation of a specific particulate component to the infectivity of plasma from chicks with erythromyeloblastic leucosis, a definite correlation between the particles and infectivity was found: in plasma at the onset of the disease in chicks inoculated with the virus; in the electrophoretic mobilities of the particles and the infectious unit; and in the sedimentation properties of the two materials of the plasma. These findings were interpreted as evidence that the specific particles constitute the virus of the disease. Work carried along simultaneously with the present investigations has revealed a close relationship of the same particles to an enzyme in the plasma acting to dephosphorylate adenosine triphosphate. The results of all these studies provide a sound basis for regarding the particles as the virus which possesses the specific enzyme activity.

I. MOMMAERTS, E. B., ECKERT, E. A., BEARD, D., SHARP, D. G. & BEARD, J. W. (1952). Dephosphorylation of adenosine triphosphate by concentrates of the virus of avian erythromyeloblastic leucosis. — *Proc. Soc. exp. Biol., N.Y.* **79**, 450-455. 2482

II. MOMMAERTS, E. B., BEARD, D. & BEARD, J. W. (1953). Screening of chicks with erythromyeloblastic leucosis for plasma activity in dephosphorylation of adenosine triphosphate.—*Ibid.* **83**, 479-483. [Authors' summaries modified.] 2483

I. A highly potent capacity for the dephosphorylation of adenosine triphosphate was observed with preparations containing the virus of avian erythromyeloblastic leucosis. This enzymic reaction occurred with the filtered plasma of diseased birds, and with virus concentrates obtained from the plasma by ultracentrifugal procedures. The partition of enzymic activity in these preparations closely paralleled the distribution of virus infectivity of analogous materials measured in other works by titration of the virus in susceptible host chickens. No evidence of the reaction was

obtained with plasma from normal chickens. These experiments demonstrate the specific relationship of the dephosphorylation of adenosine triphosphate with avian erythromyeloblastic leucosis and indicate that the activity is a property of the aetiological virus.

II. A micro-procedure has been designed for the rapid testing, in 5 λ volumes, of the plasmas of chickens with erythromyeloblastic leucosis for their capacity to dephosphorylate adenosine triphosphate. Since this enzymic activity is related both to the number of virus particles and to the infectivity of the plasma, the test provides the means either for the measurement of those qualities or for the selection of chicks possessing the qualities in the desired degree. There is a wide variation in this enzymic activity among the individuals of the diseased chick population. For practical application to the study of erythromyeloblastic leucosis, the test is comparable with the haem-agglutinative reaction with the influenza virus. The test in its present form would not be useful in the diagnosis of erythromyeloblastic leucosis which can be accomplished much more easily by blood smear. No experiments have been made to learn whether the reaction might occur with the plasma of birds with visceral lymphomatosis which is much more difficult to diagnose in the intact bird.

I. ECKERT, E. A., BEARD, D. & BEARD, J. W. (1953). Dose-response relations in experimental transmission of avian erythromyeloblastic leucosis. II. Host response to whole blood and to washed primitive cells.—*J. nat. Cancer Inst.* **13**, 1167-1184. 2484

II. ECKERT, E. A., BEARD, D. & BEARD, J. W. (1954). Dose-response relations in experimental transmission of avian erythromyeloblastic leucosis. III. Titration of the virus.—*Ibid.* **14**, 1055-1066. 2485

III. ECKERT, E. A., WATERS, N. F., BURMESTER, B. R., BEARD, D. & BEARD, J. W. (1954). Dose-response relations in experimental transmission of avian erythromyeloblastic leucosis. IV. Strain differences in host response to the virus.—*Ibid.* 1067-1080. [Authors' summaries modified. For part I, see *V.B.* **23**, 3433.] 2486

I. The authors studied dose-response relations in the experimental transmission of avian erythromyeloblastic leucosis by whole blood and by the washed primitive cells present in the blood of chicks with leucosis. They observed a linear relationship between the induced incidence of the disease transformed to

probits and the log dose of the preparations containing the cells. This relationship, which is similar to that seen in previous studies on transmission by the virus present in filtered plasma, would appear to be suitable for bio-assay of the transmission capacities of preparations containing cells, as are the analogous relations in the measurements on the infectivity of the virus.

II. In further studies of the host-response of 3-day-old chicks to experimental inoculation with the virus of erythromyeloblastic leucosis it was observed that, except under special conditions, the time-frequency relations for a given dose were truncated, consisting of an initial limb of normal distribution followed by a sharp deviation. The point of truncation was related directly to the dose. A remarkable uniformity was seen in the slopes of the first limbs of the distribution, not only with different doses in a single experiment but also in the various doses from one experiment to another. Analyses showed that the median log latent period of the chicks represented in the limb of normal distribution was related in a linear fashion to log dose and that this relation provided an accurate practical means for the estimation of either virus infectivity or the state of resistance or susceptibility of the test-host population.

A special line of White Leghorn chicks was found to be of relatively very high susceptibility and homogeneity to infection with the virus; the authors described their origin and the characters of their superiority over other chicks for such studies.

III. The authors studied the host-response of 3-day-old chicks of different breeds and strains to i/v inoculation with graded doses

of the agent of erythromyeloblastic leucosis. The results were analysed on the basis of time-frequency distributions which gave truncated curves, providing several criteria for judging the characters and estimating the levels of the responses. These were variation in the slope of the first limb of the truncated curve, dependent on homogeneity of response; incidence at the point of truncation, determined by the influence of natural resistance on response; total incidence, which was influenced by the combined effects of natural and acquired resistance; and the median latent period determined or calculated from the responses constituting the initial limb of the curve. This last variation was regarded as a function of both natural resistance and the homogeneity of the population. Chicks of a New Hampshire breed and White Leghorn chicks from two different commercial flocks were relatively resistant to infection with the virus and displayed marked heterogeneity in individual responses to the virus. The findings indicated no relation between either the qualitative or the quantitative characters of the responses and the two different breeds of chicks. The investigation included six different lines of White Leghorn chicks long inbred (at the Regional Poultry Research Laboratory, East Lansing, Michigan) for resistance or susceptibility to lymphomatosis. All the lines, except line 7 (susceptible to neurolymphomatosis) were highly susceptible to the virus of erythromyeloblastic leucosis and all except line 14, were relatively highly homogeneous in response to this agent. There was no evidence of correlation between the state of resistance or susceptibility to lymphomatosis and that to erythromyeloblastic leucosis.

NUTRITIONAL AND METABOLIC DISORDERS

STALLCUP, O. T. (1954). **The release of ammonia nitrogen from urea, ammoniated molasses, and soybean oil meal in the presence of rumen microorganisms.**—*J. Dairy Sci.* **37**, 1449-1460. [Author's summary modified.] 2487

S. carried out 4 series of experiments to determine the relative amounts of free ammonia nitrogen released from urea, ammoniated cane molasses (15.4% protein equivalent), ammoniated invert molasses (33.3% protein equiv.), and soya bean meal in the presence of rumen microflora and the enzyme urease.

He used an artificial rumen, in which he incubated the substances for one hour at 40°C. with and without urease.

In another experiment urea and the ammoniated molasses were added to the rumen of a fistulated steer on a diet of Korean lespedeza hay, and the level of free ammonia nitrogen in the rumen liquor was determined.

He presented evidence that there was some free ammonia in both samples of ammoniated molasses. The amount of free ammonia associated with these materials did not increase significantly with prolonged fermentation in an artificial rumen, nor was a significant amount released in the presence of the enzyme urease. Considerable amounts of ammonia nitrogen were released from urea in the presence of rumen microflora both *in vitro* and *in vivo* and in the presence of the enzyme urease. The

enzyme urease effected the release of a significant amount of ammonia nitrogen from soya bean oil meal, but this amount was very small compared to the amount released from urea.

JURTSUK, P., JR., DOETSCH, R. N., MCNEILL, J. J. & SHAW, J. C. (1954). *In vitro* studies of the effect of aureomycin and terramycin on mixed suspensions of bovine rumen bacteria. — *J. Dairy Sci.* 37, 1466-1472. [Authors' summary modified.] 2488

The authors observed no significant or consistent difference between heated and unheated suspensions of bovine rumen bacteria in their ability to inactivate chlortetracycline (aureomycin) and oxytetracycline (terramycin). The presence of a specific heat-labile inhibitor such as an "aureomycinase" could not be demonstrated either in the mixed suspensions of rumen organisms or in the rumen fluid itself. A non-specific type of inactivation was observed in some instances with aureomycin, and this was most probably due to the protein nature of the mixed suspensions of rumen organisms.

The presence of both aureomycin and terramycin (100 µg. per ml.) definitely decreased the ability of rumen bacteria in the "resting state" to utilize the carbohydrates xylose, arabinose, glucose, maltose and cellobiose *in vitro*.

Aureomycin and terramycin, when added to a plating medium (final concentration 25 µg. per ml.), completely inhibited the growth of bovine rumen bacteria, but not when added at the same concentration to the rumen fluid, before plating.

SCHENDEL, H. E., BORG, A. F. & JOHNSON, B. C. (1954). The effect of antibiotics on the intestinal and cecal microflora of baby pigs fed a "synthetic milk". — *J. Anim. Sci.* 13, 904-911. [Authors' summary modified.] 2489

The authors studied the intestinal and caecal microbial populations of 5-week-old pigs which had been raised from birth on a "synthetic milk" and which had responded to an oxytetracycline (terramycin) supplement to this diet. From plate counts it seemed that the effect of terramycin was to increase about tenfold the numbers of microbes in all parts of the intestine from the duodenum to the caecum. None of the microflora present in the control animals was absent from those receiving the terramycin supplement.

TELKKÄ, A. & KUUSISTO, A. N. (1954). Is the growth-promoting effect of antibiotics connected with thyroid function? — *Acta endocr., Copenhagen.* 16, 365-368. [In English.] 2490

The addition of aureomycin or terramycin to the diet of rats, in doses sufficient to stimulate growth, did not affect the histology and relative weight of the thyroid gland.—R. M.

FOWLER, S. H. & ROBERTSON, G. L. (1954). Some effects of source of protein and an antibiotic on reproductive performance in gilts.—*J. Anim. Sci.* 13, 949-954. [Authors' summary modified.] 2491

Four lots of five gilts each were used to test the effects of various combinations of animal and vegetable protein, and the presence or absence of chloramphenicol (chloromycetin), on the reproductive performance of gilts.

Those on a diet of animal protein matured more rapidly and had a slightly, though not significantly, higher rate of ovulation.

Chloramphenicol had no significant effect on reproductive performance though it seemed to increase the number of ova produced, and embryo survival, to a limited extent. It had no detrimental effect on the haemoglobin level.

NELSON, A. A. & RADOMSKI, J. L. (1954). Comparative pathological study in dogs of feeding of six broad-spectrum antibiotics.—*Antibiot. & Chemother.* 4, 1174-1180. [Spanish summary p. 1187.] 2492

Sixty-eight dogs were fed one of the six antibiotics—chloramphenicol (or its inactive L-threo derivative), chlortetracycline (aureomycin), oxytetracycline (terramycin), tetracycline [V.B. 25, 2147-2149], erythromycin, and carbomycin—or served as controls. The antibiotics were given in capsules at 250 mg./kg./day, 6 days per week for 14 weeks. Those fed chlortetracycline or either form of chloramphenicol showed slight or pronounced reduction of r.b.c. count and slight depression of granulocyte and total leucocyte counts. About half of them died, and lesions at P.M. examination included emaciation, fatty degeneration of the liver, depletion of the bone-marrow, and atrophic changes of the spleen, lymph nodes, skeletal muscles and other tissues. The inactive isomer of chloramphenicol caused rapid death.

In dogs fed carbomycin there was slight epithelial proliferation in the gall-bladder.—A.S.

COATES, M. E., DAVIES, M. K. & KON, S. K. (1955). The effect of antibiotics on the intestine of the chick.—*Brit. J. Nutr.* 9, 110-119. 2493

The authors demonstrated that in chicks fed a normal mash with a procaine penicillin supplement there was a reduction in the weight and length of the small intestine. They discussed the theory that the growth-promoting

action of penicillin resided, in part at least, in its power to suppress a hypothetical inapparent infection which is assumed to be present in most chick-rearing premises, but absent from disinfected isolation units. In a further experiment to test this theory "uninfected" chicks were kept in isolation units. These chicks, when given a penicillin supplement, showed no increase in weight and no decrease in the weight of the intestine.—A.S.

ANDERSON, G. C., HARE, J. H., BLETNER, J. K., WEAKLEY, C. E., JR. & MASON, J. A. (1954). A haemorrhagic condition in chicks fed simplified rations.—*Poult. Sci.* **33**, 120-126. 2494

A haemorrhagic condition, resembling the avitaminosis K syndrome was observed in New Hampshire chicks reared in wire-floored batteries and fed a simplified maize-soya bean oil meal ration. Haemorrhage was observed most frequently in the musculature of the breast and legs, in the meninges of the brain directly beneath the skull, and subcutaneously in the wings and legs. Blood was found in the crop and pronounced ulceration of the gizzard was seen in the majority of the birds. The blood clotting time was markedly extended, but could be reduced by the addition to the diet of 2-methyl-1, 4-naphthoquinone (menaphthone). dehydrated lucerne (alfalfa) meal and fresh or dried chicken faeces.

The inclusion of penicillin, sulphaquinolaxline or a proprietary substance containing an arsenical growth stimulant together with a sulphonamide did not appear to influence the occurrence or severity of the haemorrhagic condition.—S. BRIAN KENDALL.

RINDFLEISCH-SEYFARTH, M. (1954). Muskelmagenleiden bei Haushühnern infolge diverser Futterschäden. [*Diseases of the gizzard in fowls resulting from faulty nutrition.*]—*Berl. Münch. tierärztl. Wschr.* **67**, 142-143. 2495

In chickens and pullets fed exclusively or excessively with a certain commercial concentrate mixture the gizzard had a loose and soft consistency; the mucosa of the gizzard was soft, rubbery and very easy to remove. The proventriculus and gizzard contained a considerable quantity of water; in some birds the gizzard was impacted with sand.—H. BEHRENS.

CHIVERS, W. H. (1954). Treatment of chronic bloat with antibiotics.—*N. Amer. Vet.* **35**, 186-187. 2496

Thirty-five cattle under one year which had had chronic tympanites for weeks or

months were treated either with chlortetracycline (aureomycin) or oxytetracycline (terramycin); 29 apparently complete cures were recorded. No controls were mentioned.

—C. C. BANNATYNE.

COOK, R. P., KLIMAN, A. & FIESER, L. F. (1954). The absorption and metabolism of cholesterol and its main companions in the rabbit, with observations on the atherogenic nature of the sterols.—*Arch. Biochem.* **52**, 439-450. 2497

Rabbits were fed for 23-25 days, diets containing 16.6% olive oil to which was added 1% of either pure cholesterol, latherosterol, 7-dehydrocholesterol, or cholestanol. All the sterols produced atheroma of the aorta. Cholestanol, which is poorly absorbed from the intestine in mice and in human beings, was absorbed from the intestine of rabbits at a rate not much less than that of the unsaturated sterols.—R.M.

BROOKS, C. C., GARNER, G. B., GEHRKE, C. W., MUHRER, M. E. & PFANDER, W. H. (1954). The effect of added fat on the digestion of cellulose and protein by ovine rumen microorganisms.—*J. Anim. Sci.* **13**, 758-764. [Authors' summary modified.] 2498

The addition of maize oil (10-170 mg.) to 1 g. of dry matter containing 50% cellulose in an artificial rumen inoculated with ovine rumen organisms significantly reduced cellulose digestion (40-94%). The addition of 32 or 64 g. of maize oil to a basal ration of cottonseed hulls and casein significantly reduced cellulose digestion and lowered protein digestion in sheep. Ruminal contents had a putrid odour, a turbid color and a lowered volatile fatty acid content. The total number of bacteria present was not reduced, but there was a decrease in the number of small rods and an increase in small cocci when fat was present. *Aerobacter aerogenes* was isolated from the rumen contents of sheep fed 64 g. of maize oil. The addition of 32 or 64 g. of lard to the basal ration also decreased cellulose digestion. Lucerne (alfalfa) ash lessened the depressant action of maize oil and lard on the digestion of cellulose.

ALFIN-SLATER, R. B., AFTERGOOD, L., WELLS, A. F. & DEVEL, H. J., JR. (1954). The effect of essential fatty acid deficiency on the distribution of endogenous cholesterol in the plasma and liver of the rat.—*Arch. Biochem.* **52**, 180-185. 2499

When rats were maintained on diets low in fat over 20 weeks the cholesterol content of

the liver and adrenal glands increased and that of the plasma decreased. The authors suggested that this may be the result of failure of cholesterol esters containing fatty acids other than polyunsaturated acids to be available for normal metabolism.—R.M.

SARKAR, B. C. R., RYKALA, A. J. & DUNCAN, C. W. (1953). **The essential amino acid content of the proteins isolated from the milk of the cow, ewe, sow, and mare.** — *J. Dairy Sci.* **36**, 859-864. 2500

The essential amino-acid composition of mixed proteins isolated from the milk of the sow, mare, cow and ewe was determined by microbiological assay. Protein from sow's and mare's milk contained more arginine and less tryptophan, but otherwise there was little difference in the samples examined.

—W. H. PARR.

BELASCO, I. J. (1954). **Comparison of urea and protein meals as nitrogen sources for rumen microorganisms: the production of volatile fatty acids.**—*J. Anim. Sci.* **13**, 748-757. [Author's summary modified.] 2501

When used as the sole nitrogen source in an artificial rumen, urea promoted the formation of higher levels of propionic acid and lower levels of butyric and valeric acids than did high protein feeds such as soya bean, linseed, cottonseed and maize gluten meals given in quantities containing equivalent amounts of nitrogen. The acetic acid level and the total quantity of volatile fatty acids were unaffected by the type of nitrogen substrate. B. suggested that high propionic acid production is the result of high cellulolytic activity in the rumen in the presence of a highly readily available source of nitrogen such as urea.

HANSARD, S. L., COMAR, C. L. & PLUMLEE, M. P. (1954). **The effects of age upon calcium utilization and maintenance requirements in the bovine.**—*J. Anim. Sci.* **13**, 25-36. [Abst. from authors' summary.] 2502

Concurrent chemical and radio-calcium balance studies were carried out with 34 Hereford cattle ranging in age from 10 days to 190 months.

Maintenance requirements per 100 lb. body wt. calculated from the endogenous and true digestibility values ranged from 0.5 g. at 10 days to 2 g. at 6 months and remained relatively constant to maturity.

The procedure which the authors described should be useful for the estimation of the true digestibility of the calcium from the various

organic and inorganic sources with animals of different ages under various experimental conditions.

TAYLOR, T. G. & MOORE, J. H. (1954). **Skeletal depletion of hens laying on a low-calcium diet.**—*Brit. J. Nutr.* **8**, 112-124. [Authors' summary modified.] 2503

Eight pullets were kept on a constant high calcium diet until they began to lay and had laid 3 eggs, at which stage 2 birds were killed as controls. The other 3 pairs were then deprived of calcium and killed after they had laid 2, 4 and 6 more eggs respectively. The authors compared the phosphorus and calcium contents of the skeletons. The mean weights of Ca and P stored by the 8 pullets during the pre-laying period were 5.58 and 1.31 g. respectively, giving a mean Ca:P ratio of 4.25.

When the birds were placed on the low-Ca diet there was a reduction in the percentage of shell Ca which became progressively greater with each egg laid.

After the birds had laid 2, 4, or 6 eggs on the deficient diet the mean skeletal losses of Ca were 16.3, 25.2 and 38.4% respectively. The percentage loss of P was in all birds slightly less than the percentage loss of Ca.

During the low-Ca period 5 out of 7 birds excreted less P than was calculated to have been lost from the skeleton. This P, which amounted to over 1 g. in the birds that had laid 6 eggs on the deficient diet, is thought to have been stored in the soft tissues.

The mean ash weights of individual bones from 2 birds on each of the low-Ca treatments were compared with controls. The bones that suffered the greater proportional losses were the ribs, sternum, ilium, ischium and pubis, coccygeal vertebrae, and fibula, all of which, in the birds that had laid 6 eggs on the deficient ration, were found to have lost over 50% of the mineral matter originally present. The bones that suffered least were the skull, metatarsus and toes.

The level of medullary bone ash tended to be maintained on the low-Ca diet in spite of a severe fall in the amount of cortical ash. The percentage of ash in the depleted bones showed a slight reduction in most birds. Severely depleted bones showed a much greater reduction in the Ca:P ratio than those with slight depletion. The authors discussed the significance of the high Ca:P ratio of the mineral stored in the pre-laying period and of

the changes in bone composition consequent on mineral depletion.

MOORE, J. H. & TYLER, C. (1955). **Studies on the intestinal absorption and excretion of calcium and phosphorus in the pig. I. A critical study of the Bergeim technique for investigating the intestinal absorption and excretion of calcium and phosphorus. II. The intestinal absorption and excretion of radioactive calcium and phosphorus.**—*Brit. J. Nutr.* **9**, 63-80 & 81-93. 2504

I. The authors slaughtered pairs of pigs at 9-10 weeks of age, 2, 4, or 6 hours after feeding, and examined the contents of the gastro-intestinal tract with regard to pH, total Ca and P, solubility of Ca and P, phytate P, and insoluble ash. The acidity of the stomach contents increased gradually after feeding. The acidity of the contents of the large intestine decreased with time after feeding; that of the small intestine showed little change. They discussed the digestion and absorption of the elements under study and the limitations of this method (Bergeim's method) in investigating intestinal absorption and excretion of Ca and P.

II. In discussing Bergeim's method [see above] the authors had noted that it was impossible to determine by analysis of gastro-intestinal contents where in the tract the absorption of Ca and P is most rapid, mainly because of the absence of a satisfactory reference substance, and also that it was impossible to distinguish between endogenous and exogenous Ca and P in the tract. They developed a modification of the technique, using radio-active Ca and P to enable the endogenous or exogenous source of these elements to be determined. The absorption of P four hours after feeding was greatest in the upper half of the small intestine, and that of Ca in the upper quarter. Ca and P were secreted into the lumen of the upper parts of the small intestine, and reabsorbed in its lower parts.—A.S.

ROSENBERG, M. M. & SEU, E. (1954). **Tolerance of growing chickens to solutions of Hawaiian salt.**—*World's Poult. Sci. J.* **10**, 343-351. 2505

Artesian well water becomes brackish in the dry season on a number of Pacific islands. Working at Hawaii the authors studied the tolerance of young fowls of various ages to various concentrations of salt in the drinking water. In their first 6 weeks chicks could tolerate up to 150 grains of "Hawaiian salt"

(evaporated sea water) per gal. of drinking water. Three out of 20 survived a concentration of 550 gr./gal. Cockerels at 6 weeks tolerated up to 400 gr./gal. Pullets from 7-27 weeks also tolerated up to 400 gr./gal., beyond which level they were not tested. Brackish water was always consumed in greater quantities than fresh water.

This work confirmed reports that salt in solution is toxic at lower concentrations than salt in dry feed.—A.S.

PAVONCELLI, R. (1954). **Su di un caso di litiasi pancreatica bovina. [Calculi of the pancreatic ducts in a cow.]**—*Riv. Med. vet., Parma*, **6**, 433-438. [English and French summaries.] 2506

A description of the histological changes produced by calculi in the pancreatic ducts of a cow.—T. E. GATT RUTTER.

BRODEY, R. S. (1955). **Canine urolithiasis. A survey and discussion of fifty-two clinical cases.**—*J. Amer. vet. med. Ass.* **126**, 1-9. [Author's summary modified.] 2507

B. discussed observations on 52 cases of canine urolithiasis and emphasized the importance of urinary infection in phosphate urolithiasis. Urine culture and *in vitro* tests to determine the antibiotic sensitivity of the organisms isolated, are important to the determination of postoperative prophylactic therapy.

In uric acid lithiasis, many factors are still imperfectly understood: high fluid intake is, however, essential, and it is important to render the urine alkaline, and sometimes to change the diet.

BERGER, S. (1954). **Wpływ pastwiskowego żywienia krów na poziom witaminy A i karotenoidów w surowicy krwi. [Pasture feeding in relation to vitamin A and carotenoid content of bovine serum.]**—*Roczn. Nauk rol. Ser. E.* **66**, 371-378. [In Polish. English and Russian summaries. Abst. from English summary.] 2508

The average vitamin E and carotenoid content of the blood serum of 9 cows in spring, before they were turned out to pasture, was 23 $\mu\text{g.}/100\text{ ml.}$ and 27 $\mu\text{g.}/100\text{ ml.}$ respectively. After the cows had been at pasture for 2 months these figures rose to 63 $\mu\text{g.}$ and 536 $\mu\text{g.}$ respectively, and 3 months after pasture feeding had ceased they were 57 $\mu\text{g.}$ and 101 $\mu\text{g.}$ respectively.—R.M.

BAKER, F. H., POPE, L. S. & MACVICAR, R. (1954). **The effect of vitamin A stores and carotene intake of beef cows on the vitamin**

A content of the liver and plasma of their calves. — *J. Anim. Sci.* **13**, 802-807. [Authors' summary modified.] **2509**

Mobilization of stored vitamin A and carotene by lactating beef cows on a low carotene intake was inadequate to provide sufficient vitamin A for their calves. The vitamin A content of milk, and to a lesser degree the carotene content, seemed much more closely related to dietary carotene intake during lactation than to differential liver stores resulting from various levels of carotene intake before calving.

Supplementation of low carotene rations with 300 mg. of carotene per cow daily during lactation resulted in normal carotene and vitamin A levels in the plasma and in the liver in unweaned calves. When this supplement was given the rate of depletion of the liver stores of the cow during the first 5 months after calving was also decreased.

WORDEN, A. N. & WATERHOUSE, C. E. (1955).

The effect of environmental temperature on the urinary excretion of riboflavin by the dog.—*Brit. J. Nutr.* **9**, 5-10. **2510**

The authors studied the rate of excretion of riboflavin in the urine of 3 adult dogs receiving known amounts of the vitamin in a standard diet. An increase of 20°F. in the environmental temp. led to a 75% increase in total riboflavin excretion in 2 of the dogs, and a 25% increase in the third.—A.S.

HALEVY, S., DIAMANT, E. J. & GUGGENHEIM, K. (1955). **The effect of antibiotics on the metabolism of nicotinic acid, biotin and folic acid in rats.**—*Brit. J. Nutr.* **9**, 57-62. [Authors' summary modified.] **2511**

The authors studied the effects of chlortetracycline (aureomycin), oxytetracycline (terramycin), penicillin and streptomycin in the diet of rats on the metabolism of nicotinic acid, biotin and folic acid. Chlortetracycline increased the amount of nicotinic acid in the liver, and, in rats treated with sulphonamide, enhanced the excretion of biotin and folic acid in the urine. Oxytetracycline increased the concentration of nicotinic acid in the liver and, in rats treated with sulphonamide, stimulated growth and raised the liver level of folic acid. Penicillin had no effect. Streptomycin reduced the urinary excretion and liver conc. of folic acid, and the biotin contents of the caecum and of the urine.

No effect of any antibiotic was noted on the conversion of folic acid into citrovorum factor. Under the conditions of the experiment

chlortetracycline seemed to exert a weak sparing action on nicotinic acid, folic acid and biotin, and oxytetracycline on nicotinic acid and folic acid. Streptomycin appeared to increase the requirement of rats for biotin and folic acid.

HOLLIS, L., CHAPPEL, C. F., MACVICAR, R. & WHITEHAIR, C. K. (1954). **Effect of ration on vitamin synthesis in rumen of sheep.**—*J. Anim. Sci.* **13**, 732-738. [Authors' summary modified.] **2512**

The authors studied the effect of variations in the diet on the synthesis of riboflavin, nicotinic acid and pantothenic acid by the micro-organisms of the sheep rumen *in vivo*. Addition of nitrogen (either as soya bean meal or urea) together with maize caused a sharp increase in the synthesis of all vitamins by animals fed a basal diet of prairie hay. Substitution of sorghum silage or alfalfa (lucerne) hay for prairie hay in the ration did not markedly change the absolute amounts of the vitamins present in the rumen material although the percentage increase during the rumen fermentation was variable. The addition of alfalfa ash to a ration containing corn cobs as the principal roughage resulted in increased synthesis of all vitamins as compared with the unsupplemented ration.

SAMPSON, J., TAYLOR, R. B. & SMITH, J. C. (1955). **Hypoglycemic coma and convulsions in fasting baby lambs.**—*Cornell Vet.* **45**, 10-15. [Authors' summary modified.] **2513**

The authors described work on the effects of fasting on blood sugar, body temperature, and weight in baby lambs. Severe hypoglycaemia, terminating in coma or convulsions, often occurred in new-born lambs after one week of fasting. Body temperature decreased and was generally below normal when the lambs were in coma or convulsions. There was a reduction in body weight.

Injections of glucose usually alleviated the symptoms of coma and convulsions, and when the hypoglycaemic symptoms had been alleviated the lambs often showed a desire to suck and the body temperature returned to normal. Recovery was not always assured by alleviating the symptoms of hypoglycaemia: the reason for this was not determined.

Control unfasted lambs maintained normal blood sugar levels and body temperature and made satisfactory weight gains.

BLOMBÄCK, M., BLOMBÄCK, B., HOFUND, S., JORPES, E., KALLNER, S. & MÅNSSON, J. (1953). **Glycogen formation without insulin.**

—*Acta physiol. scand.* **29**, 170-179. [In English. Abst. from authors' summary.] **2514**

A sheep from which the pancreas had been surgically removed was kept alive for two months without the administration of insulin. No diabetic symptoms developed in the sheep during the experimental period. During the first post-operative month a considerable loss of weight occurred owing to protein deficiency following the cessation of the pancreatic digestion. During the second month, the weight was maintained at a constant level with the subcutaneous administration of an amino-acid hydrolysate and glucose. A few hours before the animal was slaughtered, a large quantity of glucose, *i.e.*, 5.6 g./kg. body wt., was injected subcutaneously. This resulted in a high blood sugar level, 314 mg.%, and a high value for sugar in the urine, 3.1%. The glycogen content of the liver rose to 4.9%, *i.e.*, the same as in several normal sheep similarly injected. The muscle glycogen content, 0.62%, was also normal.

The authors concluded that, at any rate in the sheep, the formation of glycogen takes place entirely independently of the presence of insulin.

VAN SOEST, P. J. & BLOSSER, T. H. (1954).

A detailed study of levels of certain blood

constituents in normally calving dairy cows and in dairy cows with parturient paresis.—*J. Dairy Sci.* **37**, 185-194. **2515**

Using 4 cows of 3 breeds, selected as having a tendency to recurrent milk fever and 4 as normal controls, blood sampling was begun 30 days before the expected calving date, and continued through the puerperium; the results showed no breed differences in the three represented. Three clinical milk fever cases duly developed, also two borderline ones. In these, proportionate abnormal declines in plasma phosphorus and serum calcium were demonstrable over the period, developing 60 to 30 hours before the act of parturition. All the cows showed a marked increase of glucose and pyruvic acid at this time.—F. L. M. DAWSON.

ANON. (1953). *Ketosis (acetonemia). An annotated bibliography of this disease in cattle and sheep.* pp. 65. Rahway, N.J.: Merck & Co., Inc. **2516**

This publication contains abstracts of 360 papers on bovine and ovine ketosis, classified into 3 main sections dealing with aetiology, diagnosis, and therapy. A further section contains 3 abstracts of cases reported in other animals.—W. H. PARR.

See also absts. 2292 (nutritive value of colostrum); 2598 artificial raising of piglets); 2599 (stimulation of cellulose digestion by rumen micro-organisms).

DISEASES, GENERAL

BIRKETT, J. D. (1953). *Diseases of livestock in Sierra Leone—West Africa.*—*Bull. epiz. Dis. Afr.* **1**, 314-321. [In English and French.] **2517**

Before 1950 the herds of Sierra Leone (some 200,000 head) remained free from rinderpest and only small outbreaks occurred thereafter, owing largely to the use of wet lapinized virus vaccine. Bovine contagious pleuro-pneumonia became a serious problem in recent years though disappearing in 1950; any further outbreaks would be dealt with by slaughter and compensation. Clinical trypanosomiasis is rarely seen except in animals in poor condition, despite a high infection rate. Newcastle disease is enzootic and causes considerable losses annually. Other conditions, including parasitism, were mentioned very briefly.—C. A. E. BRIGGS.

GOTO, M., KONNO, S. & YAMAGIWA, S. (1953). [Studies on the waxy degeneration of muscles in domestic animals. V. Pathology of equine paralytic myoglobinuria.]—*Jap. J. vet. Sci.*

15, 227-237. [In Japanese. English summary.] **2518**

Pathological examination of 27 horses that had died from equine myohaemoglobinaemia revealed lesions in the musculature of the heart, larynx and diaphragm. The authors considered that disturbances in cardiac function resulting from the lesions are an important cause of death. They discussed the aetiology and suggested that as the disease is characterized by the muscular lesions it should be studied on broad myopathological lines.—KOGI SAITO.

I. KALCHSCHMIDT, H. G. (1954). Eine Headsche Zone als diagnostisches Hilfsmittel bei der Fremdkörpererkrankung des Rindes. [The "foreign body zone" of skin sensitivity in the diagnosis of foreign body syndrome in cattle.]—*Wien. tierärztl. Mschr.* **41**, 531-550. [English, French and Italian summaries.] **2519**

II. SCHREIBER, J. (1954). Methoden zur Feststellung Headscher und Mackenziescher

Zonen bei den grossen Haustieren. [**Methods of determination of the "foreign body zone".**]—*Ibid.* 550-553. **2520**

I. K. gave further details [See also *V.B.* 24, 2025] regarding the value of the "foreign body zones" for diagnosis. The dimensions of the sensitive zones are important; they indicate the severity of the condition, large zones pointing to a recent affection, medium-sized zones indicating subacute and small zones chronic conditions. He discussed the limitations of the diagnostic value of this test.

II. S. discussed the anatomical background of the skin sensitivity reaction. He suggested that a connexion must exist, even in cattle, probably high up in the nervous system, between the autonomic innervation of the internal organs and the segmental innervation of the skin.—W. G. SILLER.

PRIOUZEAU, M. (1954). Gastrite oedémateuse des bovidés. [**Chronic oedematous inflammation of the abomasum in cattle.**]—*Rec. Méd. vét.* 130, 377-380. **2521**

An account of chronic inflammation of the abomasum, a disease of unknown aetiology, affecting cattle of all ages, sporadic cases of which P. had observed for the past 30 years. Symptoms commenced suddenly with oedema of the head and profuse diarrhoea, which lasted for 3-5 days and then subsided, only to recur repeatedly at intervals of 10-15 days. After 2-3 months the oedema often became permanent and the diarrhoea continuous, and the animal eventually died from cachexia. The only lesions were present in the abomasum. They consisted of thickening and oedema of the folds of mucous membrane, which often attained a height of 3-6 cm. and a width of 2-4 cm. Helminth parasites were usually absent.—R.M.

BUZA, L. (1955). Influenzaszerű süldömegbetegedések a Tiszántúlon. [**A disease resembling influenza in piglets in Hungary.**]—*Mag. állator. Lapja.* 10, 121-123. [English and Russian summaries.] **2522**

A description of a disease of infectious character in young pigs, the symptoms of which included anorexia, nasal discharge, conjunctivitis and diarrhoea. The condition occurred mainly during the summer months and responded to treatment with antibiotics and sulphonamides.—E.G.

ROY, W. E. (1954). Role of the sweat glands in eczema of dogs. A preliminary report.—*J. Amer. vet. med. Ass.* 124, 51-54. [Abst. from author's summary.] **2523**

R. confirmed the presence of true sweat glands over the entire skin surface of the dog. Their number and activity varies greatly in different individuals. In sections from different areas of skin a definite relationship is demonstrable between the amounts of secretion found on the skin surface and the morphology of the glands present.

A characteristic property of the apocrine secretion is its tendency to become more alkaline as greater amounts of sweat are eliminated. This excessive alkaline solution irritates the surface of the epithelium and may cause eczematous lesions. The hypersecretion can be detected clinically by testing the skin surface reaction (pH) with litmus paper. The skin of normal dogs has a pH value of 5.5 to 7.2, but in hyperhidrosis it may be 8.2 to 9.0. Hyperhidrosis was a factor in cases of moist and of chronic eczema.

DUJARRIC DE LA RIVIÈRE. (1954). Centre d'étude des groupes sanguins des animaux. [**Centre for the study of blood groups in animals.**]—*Bull. Acad. Méd., Paris.* 138, 78-79. **2524**

The author here announces the formation of a centre for the study of blood groups in animals at the Laboratory of Haematology and Blood Groups (Dr. A. Eyquem, Director), Pasteur Institute, Paris. The services of this centre are available to biologists, haematologists, veterinary surgeons, and chemists. The centre is prepared to undertake the examination of blood, and will give courses of instruction in serum agglutinins, the preparation of immune sera, Coombs' test, preparation of antiglobulin serum, and related subjects.—R.M.

ANON. (1953). Medical report on atomic bomb effects. The medical section, the special committee for the investigation of the effects of the atomic bomb, the National Research Council of Japan. pp. 118. Tokyo: Nankodo Co. Ltd. \$2.50. [In English.] **2525**

This book is the report of a Special Committee for the Investigation of the Effects of the Atomic Bomb, set up by the National Research Council of Japan. This work is somewhat spoilt by the poor English translation, and the impression is given that although purporting to be a report from the time of the actual bombing it was several months before serious teamwork was begun on the study of the clinical effects.

The volume is divided into four sections, medical studies on the effects of the bomb, clinical aspects of radiation sickness, medical

aspects of atomic bomb radio-activity, and anatomy, physiology, and pathology of atomic bomb injury.

The veterinary surgeon will be mainly interested in the pathology of radiation sickness in

so far as it may be encountered amongst livestock in "fall-out" areas. The book provides a very good record of clinical data compiled from a study of persons who survived.

—D. S. PAPWORTH.

See also absts. 2276 (bovine haematuria); 2287 (rhinitis of swine); 2393 (pneumonia in calves); 2430 (air-sac infection); 2506 (calculi of the pancreatic ducts); 2507 (urolithiasis in dogs); 2535 (haematidrosis in cattle); 2549 (oedema disease of pigs); 2595 (jaundice in mice).

POISONS AND POISONING

BOHSTEDT, G. & GRUMMER, R. H. (1954). **Salt poisoning of pigs.**—*J. Anim. Sci.* **13**, 933-939. 2526

The authors produced salt poisoning in pigs by restricting their salt intakes over a number of months and then giving them heavily salted swill, which they took readily because they had been deprived of their previous feed and because trough space per pig was restricted. No water was given to them after this feed, and on the following day, when salt swill was offered again, they took only part of it. On the third day several animals developed paralysis and convulsions and many had a staggering gait. At this point normal food and water were again offered and most of the pigs recovered fully. The authors described the lesions in the pigs which developed paralysis and convulsions. They stated that this is the first report of experimentally induced salt poisoning in pigs.—A.S.

GOWDEY, C. W., GRAHAM, A. R., SEGUIN, J. J. & STAVRAKY, G. W. (1954). **The pharmacological properties of the insecticide dieldrin.**—*Canad. J. Biochem. Physiol.* **32**, 498-503. 2527

Dieldrin (hexachloro-octahydro-epoxy-dimethano naphthalene) was studied in acute toxicity experiments in cats and rabbits by intravenous and intra-arterial injection. It had a marked sympathomimetic action which was exerted through stimulation of central mechanisms and not peripherally.—R. GWATKIN.

ELY, R. E., MOORE, L. A., CARTER, R. H., HUBANKS, P. E. & POOS, F. W. (1954). **Excretion of dieldrin in the milk of cows fed dieldrin-sprayed forage and technical dieldrin.**—*J. Dairy Sci.* **37**, 1461-1465. [Authors' summary modified.] 2528

The authors detected dieldrin (a chlorinated naphthalene derivative) in the milk of 4 cows which were fed hay made from forage that had been sprayed with 3.5 and 7.0 oz. of the insecticide per acre. The average daily intakes of dieldrin were 0.10 and 0.75 mg. per kg. body wt. respectively in cows fed these two batches of hay.

They administered dieldrin in soya bean oil

solution by capsule to cows in amounts ranging from 0.11 to 2.32 mg. per kg. body wt. The concentration of dieldrin in the milk from these cows ranged from 1.7 to 13.1 p.p.m.

Dieldrin continued to be excreted for more than 47 days after cessation of feeding in the milk of animals fed from 100 to 1,000 mg. of dieldrin daily.

MOHR, F. (1954). Vergiftungen beim Schwein durch Rattengifte vom Coumarintyp. [**Poisoning in swine with rat poison of the coumarin type.**]—*Tierärztl. Umsch.* **9**, 43-45. 2529

An account of two outbreaks of poisoning in pigs following the use of a preparation containing 1% 3(p-chlorophenyl-acetylene) 4 oxycoumarin as a rodenticide. In one outbreak the preparation was scattered somewhat indiscriminately in a passage between pig pens into which the pigs were turned during cleaning of the pens. Nine pigs developed symptoms and 2 of them died. In the other outbreak the rat poison had been carefully laid outside the pig pens, and M. concluded that the 2 pigs affected may have eaten a poisoned rat. He found that the single oral administration of 100 mg./kg. of the preparation to a pig was sufficient to cause a marked increase in the blood clotting time. The pig died after 3 such doses, given on alternate days.

—R.M.

BULL, L. B. (1955). **The histological evidence of liver damage from pyrrolizidine alkaloids: megalocytosis of the liver cells and inclusion globules.**—*Aust. vet. J.* **31**, 33-40. [Author's summary modified.] 2530

B. presented evidence that the liver cell normally increases in size with an improved nutritional state, and that the maximal increase in volume under physiological conditions is approximately fourfold.

The consumption of plants containing hepatotoxic pyrrolizidine alkaloids, such as those belonging to the genera *Heliotropium*, *Senecio* and *Crotalaria*, usually leads to a slowly progressive disease of the liver which is characterized by a general megalocytosis of the liver cells. The evidence suggests that this generalized

change is pathognomonic of poisoning with these alkaloids. Haemorrhage, cell necrosis and fibrosis are commonly associated changes but are not specific for this poisoning.

Inclusion globules are commonly found in the liver cells in the chronic stages of the disease in domestic animals, and in acute toxic lesions in rats. Their presence may have some diagnostic significance, but further work is needed.

GRANT, G. A. & HUGHES, E. O. (1953). Development of toxicity in blue-green algae. [*Microcystis*, *Anabaena*, *Aphanizomenon*, *Nodularia*, *Gloeotrichia*.]—*Canad. J. publ. Hlth.* 44, 334-339. 2531

The toxicity of the above algae was determined by i/p injection of white mice. Samples were tested when fresh and after intervals of storage at low temperatures and incubation at 27°C. Treated animals were observed for 48 hours. No lethal effects were obtained with fresh material, but toxicity increased with incubation to a maximum at 18 to 26½ hours. Further incubation reduced toxicity.

—THOMAS MOORE.

LAPČEVIĆ, E., PRIBIČEVIĆ, S. & KOZIĆ, L. (1953). Trovanje konja prouzrokovačem crne rđe—*Puccinia graminis*. [Poisoning in horses with the wheat rust fungus, *Puccinia graminis*.]—*Vet. Glasn.* 7, 268-271. [In Croat. German summary.] 2532

Five out of 16 horses died as the result of being fed wheat straw contaminated with *Puccinia graminis*. The remainder showed symptoms of stomatitis and salivation only.—R.M.

HORI, M. *et al.* (1954). [Study of a fungus isolated from malt root feed caused mass death in cows.]—*J. Jap. vet. med. Ass.* 7, 56-63. [In Japanese.] 2533

In the course of investigations on the cause of fatal mass poisoning which had occurred in dairy cows, a mould of the *Penicillium urticae* series, was isolated from "malt root feed". This fungus was found to produce a toxic substance identified as patulin, which was considered to have been the cause of the poisoning. ["Malt root feed" is possibly a by-product of the preparation of "saké"—*Ed.*]—KOGI SAITO.

SIPPEL, W. L., BURNSIDE, J. E. & ATWOOD, M. B. (1954). A disease of swine and cattle caused by eating moldy corn.—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953, pp. 174-181. 2534

In Georgia, U.S.A., in 1952 there were 24 outbreaks of poisoning in pigs fed mouldy maize. The average mortality was 22%; both acute and

chronic forms of poisoning were observed. Acute symptoms consisted of depression, weakness, and loss of appetite and terminated in death after about 2 days. Massive haemorrhages, particularly in the abdominal organs were seen at P.M. examination. The chronic form was characterized by stiffness, loss of body wt., arching of the back, and poor appetite; the main lesions were jaundice and toxic hepatitis. Cultures of *Aspergillus taumanii* were obtained from affected livers.

Acute poisoning was reproduced by administering suspensions of mouldy maize by stomach tube, but feeding experiments with pure cultures of four different fungi isolated from mouldy maize were negative. Poisoning with mouldy maize was also observed in a herd of 48 cattle, 9 of which died.—R.M.

GUILHON, J. (1954). Résultats d'une enquête effectuée, en Bretagne, sur l'hématidrose des bovidés. [Results of an enquiry into haematidrosis in cattle in Brittany.]—*Bull. Acad. vét. Fr.* 27, 487-495. Discussion: pp. 495-496. 2535

G. described the incidence and discussed the aetiology of haematidrosis in young cattle in Brittany during the summer months. He considered that the condition was due to bracken poisoning.—G. P. MARSHALL.

POLIDORI, F. & MAGGI, M. (1954). Problemi di alimentazione degli animali. Su alcuni casi di avvelenamento da "*Mercurialis annua*" nei bovini. Ricerche sperimentali sulla differente tossicità della pianta allo stato fresco e dopo essiccamento. [Poisoning in cattle with *Mercurialis annua*.]—*Nuova Vet.* 30, 146-150. 2536

As a result of outbreaks of poisoning with Annual Mercury (*M. annua*) in cattle, the authors carried out feeding experiments with 18 rabbits. They found that acute poisoning occurred after the ingestion of fresh plants bearing seeds: plants which had lost their seeds were apparently harmless. Feeding of the dried seed-bearing plant produced chronic poisoning in rabbits.—G. P. MARSHALL.

TOMASELLI, R., LANFRANCHI, G. & GRIGNANI, M. (1954). Segnalazione di un avvelenamento mortale di bovini per ingestione di gigaro (*Arum maculatum* L.) in toto. [Poisoning of cattle by arum lily (*Arum maculatum*).]—*Vet. ital.* 5, 1101-1106. [English, French and German summaries.] 2537

During a period of severe shortage of hay in Northern Italy, seven cows were given green fodder containing whole plants of *Arum macu-*

latum. Three of the cows developed symptoms of pulmonary oedema and coma and died. Diarrhoea was absent. The 4 other cows remained healthy.—G. P. MARSHALL.

COOKE, A. R. (1955). The toxic constituent of *Indigofera endecaphylla*. — *Arch. Biochem.* **55**, 114-120. 2538

The use in the Hawaiian Islands of creeping indigo (*I. endecaphylla*) as a pasture legume was hampered by the presence of a toxic factor, which caused loss of appetite, apathy, delayed oestrus, and sometimes abortion in heifers fed a diet consisting mainly of this plant. The toxic principle was shown to be β -nitropropionic acid. C. described a sensitive test by which the amount of this acid in samples of the plant could be determined.—R.M.

GOLDMAN, L. & PRESTON, R. H. (1954). Hydrocortisone in therapy of poison ivy dermatitis. — *J. Amer. med. Ass.* **154**, 1348-1349. 2539

The authors found that hydrocortisone given by mouth was nearly twice as effective as cortisone in the symptomatic treatment of dermatitis caused by poison ivy.—A.S.

I. PONZONI, R. & SPAMPINATO, V. (1953). Sulla morte precoce delle cavie in corso di trattamento aureomicinico. Tentativi di protezione con vitamine dei gruppi B e C e con

cortisone. I. Ricerche batteriologiche. [Death in g. pigs during treatment with aureomycin. Attempts at protection with group B and C vitamins and cortisone. I. Bacteriological investigation.] — *Boll. Ist. sieroter. Milano.* **32**, 239-246. [English summary.] 2540

II. GIBERTI, A., PONZONI, R. & SPAMPINATO, V. (1953). Sulla morte precoce delle cavie in corso di trattamento aureomicinico. Tentativi di protezione con vitamine dei gruppi B e C e con cortisone. II. Ricerche histologiche. [Death in g. pigs during treatment with aureomycin. Attempts at protection with group B and C vitamins and cortisone. II. Histological investigation.] — *Ibid.* 247-255. [English summary.] 2541

I. After daily dosage with 25 mg. aureomycin *per os* g. pigs usually died in 5 days, following severe symptoms of shock. P.M. changes included emaciation, congestion of the viscera and haemorrhages in the parenchyma of the adrenal glands. High doses of cortisone or vitamin C and B group vitamins did not prevent death.

II. The toxic action of aureomycin induces regressive changes in various organs, especially in the liver, kidneys and adrenal glands, with acute haemorrhagic infiltrations in the adrenal cortex.—I. MARTINI.

See also *absts.* 2505 (tolerance of fowls to salt solution); 2619-20 (reports, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

CLARK, R. & WEISS, K. E. (1954). Studies on the comparative actions of carbamylcholine, physostigmine and neostigmine in different species of domestic animals.—*Onderstepoort J. vet. Res.* **26**, 485-500. 2542

The reactions to standard doses of the drugs were tested on dogs, sheep and donkeys by recording arterial blood pressure and the motility of various parts of the digestive tract. The authors presented 12 such tracings.

Carbamylcholine was found to cause:—A marked drop in arterial blood pressure due to vasodilation, profuse salivation, incoordinated spastic contractions of the rumen and simple stomach, variable effects on the large intestine and strong contraction of the urinary bladder. In similar (therapeutic) doses physostigmine and neostigmine caused a slight rise in arterial blood pressure and had little effect on the heart rate or respiration. They did not cause spastic contractions of the rumen or simple stomach nor did they inhibit the reticulum. Their action

on the motility of the large intestine was superior to that of carbamylcholine though they had less action on the urinary bladder. The authors discussed the use of the drugs in veterinary practice in the light of the findings.

ROBINSON, P. F. (1954). Effect of atropine on glucose metabolism in goats. — *Amer. J. Physiol.* **179**, 665-666. [Only abst. given.] 2543

Eleven goats each received 300 mg. atropine (equiv. to 200 times the human therapeutic dose) and a heavy dose of glucose was injected intravenously after 10 min.; "metabolism" of this glucose appeared to be slightly delayed as compared with controls.—F. L. M. DAWSON.

SCHÜTZLER, G. & SCHOOP, P.-G. (1954). Eiweisstrübungsreaktion am Pferdeserum mit einem Antihistaminikum (Soventol). [Protein turbidity reaction in horse serum using "soventol", an antihistamine preparation.] — *Zbl. VetMed.* **1**, 745-758. [English, French and Spanish summaries.] 2544

Amounts of 0.4% "soventol" (4-N-benzyl-anilino-1-methyl piperidine) necessary to give irreversible turbidity with horse serum were found to be: 0.48-0.52 ml. per unit ml. of serum for healthy animals, 0.35-0.37 for serum producers, 0.37-0.39 for suppurative conditions, 0.27-0.29 for infectious catarrh, 0.35-0.37 for equine influenza, 0.38-0.42 for Borna disease, and 0.14-0.18 for equine infectious anaemia.

—F. R. PAULSEN.

COLLIER, H. B. (1953). **Enzyme inhibition by derivatives of phenothiazine. VI. Inhibition of glyoxalase activity of human and rabbit erythrocytes.**—*Canad. J. med. Sci.* **31**, 195-201. **2545**

Phenothiazone (a derivative of phenothiazine), phenothiazine, methylenè blue and other substances were found to inhibit glyoxalase activity of human and rabbit r. b. c. Enzyme inhibition did not parallel methaemoglobin formation. C. discussed the relationship of these findings to the haemolytic action of phenothiazine.—R. GWATKIN.

HUMPHREY, J. H., LIGHTBOWN, J. W., MUSSETT, M. V. & PERRY, W. L. M. (1953). **The international standard for aureomycin.**—*Bull. World Hlth Org.* **9**, 851-860. [French summary.] **2546**

Comparison of a 100 g. batch of aureomycin with the Standard Preparation of Aureomycin of the United States Food and Drug Administration by 6 laboratories involving 30 separate assays, revealed that the overall weighted mean potency was 1.0139 with limits of error of 99.5% to 100.5%. Slight but significant curvature was shown in the results of a large-scale plate assay using three dose levels.

Since the International Standard is 1.39% more potent than the FDA's standard preparation it is probable that the latter contains some inert material and that the International Standard itself may not be 100% pure. But an alteration in the present practice of quoting aureomycin dosage in terms of metric weight is not recommended, though for bioassay purposes the International Unit of aureomycin is defined as the activity contained in one µg. of the International Standard.—J. M. LEACH.

DAKIN, W. V., AU, R. J., CRUNDWELL, J. B., HENSLEY, J. H., MOSS, L. C., BARR, D. E., MCINTYRE, T. M., CHUDACOFF, J. D., STEINMETZ, W. E. & PANG, W. M. (1954). **Piromen therapy in dogs.**—*Calif. Vet.* **7**, No. 7, pp. 27-28. **2547**

A report on the treatment of 82 dogs with conditions ranging from dermatitis to diarrhoea,

with "piromen" (a polysaccharide derived from a species of *Pseudomonas*). Good results were obtained in dermatitis, eczema and pruritus. Cases of corneal ulceration and opacity responded. The treatment was ineffective in distemper.—A. SEAMAN.

SIKOROWSKI, K. (1954). **Leczenie ostrego ochwatu pokarmowego u koni środkami antyhistaminowymi. [Treatment of laminitis in horses with antihistamines.]**—*Roczn. Nauk rol.* Ser. E, **66**, 417-425. [English and Russian summaries. Abst. from English summary.] **2548**

Although treatment of acute laminitis in horses with antihistamine drugs yielded good results, S. claimed that recovery was more rapid following a treatment which consisted of the i/v injection of 100 ml. bovine bile in 400 ml. water, once every 8 hours for 1-2 days.—R.M.

HIDIROGLOU, M. (1954). **Quelques observations sur le traitement de la maladie de l'oedème du porc. [Some observations on the treatment of oedema disease of pigs.]**—*Rec. Méd. vét.* **130**, 789-791. **2549**

H. stated that the use of sulphonamides, antibiotics or vitamin B₁ failed to save the lives of pigs with oedema disease in a herd in the Belgian Congo. He found, however, that a single injection of vitamin A (100,000 to 250,000 I. U.) caused the condition to clear up rapidly in 13 out of 15 animals. He surmised that the condition is a metabolic disorder rather than a toxæmia.—G. P. MARSHALL.

SAVITSKY, J. P. (1955). **Control of radiation hemorrhage with splenic extracts.**—*Blood.* **10**, 52-61. [Interlingua summary.] **2550**

A partially purified preparation from cattle spleen neutralizes the decrease in platelet adhesiveness and prolongation of the clot reaction time which occur in dogs after whole-body irradiation with X-rays.—A. SEAMAN.

HUNTER, J. D., BAYLISS, R. I. S. & STEINBECK, A. W. (1955). **Effect of adrenaline on adrenocortical secretion.**—*Lancet.* **268**, 884-886. [Authors' summary copied verbatim.] **2551**

Adrenaline causes a variable degree of eosinopenia which is maximal 2-4 hours after the injection, whereas after the intravenous injection of corticotrophin the eosinopenia is maximal after a delay of 4 hours. The eosinopenia after the injection of adrenaline is unrelated to any rise in the plasma level of 17-hydroxycorticosteroids. These observations suggest that, in man, adrenaline does not cause increased adrenocortical secretion.

MALAFAYA-BAPTISTA, A., SOBRINHO SIMOES, M. & OSSWALD, W. (1954). Anesthésie d'animaux de laboratoire aux solutions concentrées de chloralose dans le 1,2-propanediol. [*Anaesthesia of laboratory animals using chloralose dissolved in 1,2-propanediol.*]—*C. R. Soc. Biol., Paris*. **148**, 1925-1927. **2552**

Injection of 0.1-0.12 g./kg. of chloralose (10% in 1, 2-propanediol) into the lesser saphenous vein of dogs, or of 0.06-0.08 g./kg. into the femoral vein of ether-anaesthetized cats, produced rapid anaesthesia suitable for surgery and physiological work; the effect lasted 2-4 hours. It may be prolonged by further injection using one third of the original dosage. The method might be used with other laboratory animals.—F. R. PAULSEN.

GARROD, L. P. (1955). *Chemicals versus bacteria.*—*Proc. R. Soc. Med.* **48**, 21-28. [53 refs.] **2553**

G. discussed historical developments and controversies in the fields of skin disinfection, wound antisepsis and chemotherapy, with particular reference to the need for sound laboratory work and to the importance of making both laboratory and clinical testing methods as free as possible from the pitfalls which have been and are still producing contradictory findings and trends. He particularly dwelt on the quaternary ammonium compounds for skin disinfection, on the acridines for wound antisepsis, on the antiseptic "hibitane" (bis-*p*-chlorophenyl-diguanidohexane) and, in the field of chemotherapy, on arsenicals.—G. P. MARSHALL.

See also absts. 2640-1 (books, antibiotics).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

HUTCHINSON, H. G. & MABON, R. M. (1954). *Studies on the environmental physiology of cattle in Tanganyika. I. Preliminary observations on the seasonal diurnal variations in the rectal temperature of local Zebu cattle.*—*J. agric. Sci.* **44**, 121-128. **2554**

In preliminary studies the authors recorded the body temperature of ten local zebu cows over 134 days from July to December in Tanganyika. General adjustment of the thermoregulating mechanism to seasonal changes was noted.—W. S. MARSHALL.

BHATIA, H. M. & SHARMA, R. M. (1953). *Normal morning temperature of goats in India.*—*Indian vet. J.* **30**, 209-216. **2555**

In 5,594 readings in 2,121 healthy goats the morning rectal temperature ranged from 98.0-103.0°F., being comparatively high in warmer months in the plains and low in cooler months in the hills.—R. N. MOHAN.

WEALE, R. A. (1953). *Photochemical reactions in the living cat's retina.*—*J. Physiol.* **122**, 322-331. **2556**

Variation in the spectrum of photochemical recovery of the cat's retina after bleaching as a result of illumination with white light suggested the presence of more than one photochemical component. Further study is required for the confirmation of this observation.

—F. R. PAULSEN.

DRABKIN, D. L., GRAYBIEL, A., COLEHOUR, J. H., USDIN, V. & DYCH, A. M. (1954). *A function of the spleen, as disclosed by labeling studies of hemoglobin metabolism in dogs.*—*Amer. J. med. Sci.* **228**, 113-114. **2557**

The authors observed the fate of glycine-2-¹⁴C-labelled haemoglobin and dimethyl protoporphyrin in splenectomized and control beagle dogs at sea level and under conditions of altitude anoxia stress at a simulated altitude of 18,000 ft. Under both conditions of altitude the fate of the observed substances, as recorded graphically, appeared as curves which could be interpreted as being composed of two components, one representing the destruction of red cells as a function of their age, and another representing the random destruction of young as well as obsolescent cells.

In the splenectomized dogs under both conditions of altitude the curves representing the destruction of the substances under study were in accordance with the assumption of random red cell destruction.

It was concluded that in the splenectomized dog the capacity to destroy cells as a function of their age was considerably lessened—A.S.

CHASE, H. B. (1954). *Growth of the hair.*—*Physiol. Rev.* **34**, 113-126. **2558**

A general discussion under four main headings—development of the follicle and the first hair, phases of the cycle, experiments relating to the growth of hair, and the relation of hair growth to the whole skin. Observations were made on the mouse, rat, g. pig, rabbit and on man. C. laid emphasis on the cyclic nature of hair growth and its intimate relationship with the structure and physiology of the skin as a whole. The control of the hair growth cycle merits immediate further attention.

—W. S. MARSHALL.

GREEN, I., BROWN, J. R. C. & MOMMAERTS, W. F. H. M. (1953). Adenosinetriphosphatase systems of muscle. II. Identification of the reaction products.—*J. biol. Chem.* **205**, 493-501. **2559**

Chromatography identified products of the action of myosin systems on adenosine triphosphatase. Myosin or myofibrils can remove terminal phosphate groups, but some preparations react further. Adenylate kinase is present in such preparations. The equilibrium constant for this kinase reaction is 0.455 at 27° C. and pH 6.7.—F. R. PAULSEN.

CARLISLE, D. B. (1954). On the relationship between mammary, sweat, and sebaceous glands.—*Quart. J. micr. Sci.* **95**, 79-83. **2560**

C. studied the development of the mammae of male rabbits following repeated injections of oestrogen and progesterone. On histological grounds he suggested that mammary glands originally developed from sebaceous glands rather than from sweat glands.—R. M.

CROSS, B. A. (1955). The hypothalamus and the mechanism of sympathetico-adrenal inhibition of milk ejection.—*J. Endocrin.* **12**, 15-28. [Author's summary slightly modified.] **2561**

Electrical stimulation of the supraoptico-hypophyseal system gave rise to milk ejection from cannulated teats in anaesthetized lactating rabbits. Stimuli applied in the vicinity of the paraventricular nucleus produced signs of sympathetic activity and no milk-ejection responses in the intact animal, but after bilateral adrenalectomy milk-ejection responses could be elicited from this region.

Stimulation of the dorsal, lateral and posterior areas of the hypothalamus, but not of the ventral tuberal regions, caused pupillary dilatation, exophthalmos and hyperpnoea, and inhibited the milk-ejection response to oxytocin injected i/v 10-15 sec. after the end of the stimulus. The inhibitory effect could be simulated by injection of 1-5 µg. adrenaline. It was abolished by bilateral adrenalectomy.

Inhibition of the milk-ejection response to oxytocin was also produced by stimulation of the splanchnic nerve supply to the adrenal glands, and of the sympathetic nerve supply to the mammary glands. After bilateral adrenalectomy some inhibitory effect on milk-ejection was apparent when oxytocin was injected during prolonged stimulation of the sympathetic centres of the hypothalamus.

Adrenaline was 1½ to 4 times more active

in blocking the milk-ejection response to oxytocin injected i/v than noradrenaline.

Stimulation of the hypothalamus or mammary sympathetic nerves, and injection of adrenaline or noradrenaline did not inhibit the milk-ejection response to mechanical stimuli applied direct to the mammary glands.

The inhibition of the milk-ejection response to oxytocin produced by stimulation of the hypothalamus was associated with inability of the young to remove milk from the mammary glands by sucking.

CROSS, B. A. (1955). Neurohormonal mechanisms in emotional inhibition of milk ejection.—*J. Endocrin.* **12**, 29-37. [Author's summary slightly modified.] **2562**

Fifteen lactating rabbits were maintained on a régime of one daily nursing, and litter weights, milk yields and duration of nursing were recorded.

Sodium pentobarbitone anaesthesia blocked the milk-ejection reflex and prevented the removal of more than 15% of the full milk yield by the young. Intravenous injection of 50 mU oxytocin regularly restored normal milk removal; 10 and 20 mU did not.

In 35 out of 42 experiments in which the young were put to suck while the does were under forcible restraint the amount of milk removed was reduced by 20-100%. In 29 cases injection of 50 mU oxytocin restored normal milk removal. In the remaining 6 experiments this replacement therapy was fully effective only after the does had been anaesthetized.

Kymograph records of milk-ejection responses showed that normal milk removal was associated with a reflex milk-ejection response similar to that produced by 50 mU oxytocin, and incomplete milk removal with a reduced (=5 mU oxytocin) or absent milk-ejection response. Where injection of 50 mU oxytocin failed to restore normal milk removal in the conscious animal, the resulting milk-ejection response was reduced by an amount similar to that produced by injection of 1 µg. adrenaline.

These results indicate that, while activation of the sympathetico-adrenal system does occur, the main factor in emotional disturbance of the milk-ejection reflex is a partial or complete inhibition of oxytocin release from the posterior pituitary gland.

DENAMUR, R. & MARTINET, J. (1954). Enervation de la mamelle et lactation chez la brebis et la chèvre. [Innervation of the udder and

[lactation in the sheep and goat.]—*C. R. Soc. Biol., Paris*. **148**, 833-836. **2563**

These are claimed to be the first experiments involving the section of both the cerebrospinal and sympathetic mammary innervation. Thirteen ewes and 20 goats were treated towards the end of pregnancy or 8 days after its termination. The udders were insensitive to pricks after operation. The denervated goat udders gave about half the yield of the controls, whereas in the ewes there was no significant difference.

The question remains open whether a nervous reflex may still operate, originating distally, not from the udder but from neighbouring parts of the body stimulated at milking time.

—F. L. M. DAWSON.

SCHJEIDE, O. A. (1954). **Studies of the New Hampshire chicken embryo. III. Nitrogen and lipid analyses of ultracentrifugal fractions of plasma.**—*J. biol. Chem.* **211**, 355-362. **2564**

S. determined total lipoids and total nitrogen in the whole plasma and plasma lipoprotein fractions from chick embryos, chicks, and adult fowls. He also examined light and heavy protein fractions (lipoproteins I and II). Lipoprotein I contained a greater proportion of lipid than lipoprotein II and its nitrogen/lipoid ratio was more stable during the birds' development. Fasting in a 4-day-old chick produced a marked rise in the nitrogen content of lipoprotein I.—A.S.

SESAKI, K. (1953). [Studies on the erythrocyte sedimentation in domestic animals. VI. The influence of the dilution of plasma and red cells.]—*Jap. J. vet. Sci.* **15**, 295-298. [In Japanese. English summary.] **2565**

In horses, pigs and dogs, the erythrocyte sedimentation rate was decreased in parallel with the degree of dilution of the plasma, but it was somewhat increased in both ruminants and rabbits. The same erythrocyte sedimentation rate was observed in all three species when the plasma was replaced by salt solution. The decrease in the red cell count resulted in an increased sedimentation rate in all these species.

—KOGI SAITO.

BORTOLAMI, R. (1954). **Attività glicogenetica epatica ed isole di Langerhans in feto di Bos taurus. [Glycogenesis in the liver and functional correlation between liver and pancreas in the bovine foetus.]**—*Nuova Vet.* **30**, 12-30. [English, French and German summaries.] **2566**

Glycogenic activity starts in scattered parenchymal elements of the liver of the ox embryo after the attainment of a length of 16 cm., and it occurs in all the liver cells after the 62-cm. stage.

Haemopoietic activity in the liver decreases gradually throughout the life of the embryo. In the foetal pancreas, beta cells increase rapidly in the islets of Langerhans as glycogenesis increases.—F. R. PAULSEN.

ROBBE, H. (1954). **A method for demonstrating the vascular system in the rabbit ovary.**—*Acta endocr., Copenhagen*. **16**, 193-196. [In English.] **2567**

Ovaries in anaesthetized rabbits were exposed by laparotomy and were frozen by pouring petroleum at -150°C . over them. The ovaries were then removed, partially dehydrated by heat, and cleared by immersion in a solution consisting of 5.8 parts benzyl benzoate and 4.2 parts methyl salicylate. By this method the blood vessels were clearly outlined as bright red structures against the yellowish-brown background of ovarian tissue.

—R.M.

MEYER, A. S., RODGERS, O. G. & PINCUS, G. (1954). **Cow adrenal perfusion of 21-desoxycortisone.**—*Acta endocr., Copenhagen*. **16**, 293-299. [In English.] **2568**

After repeated perfusion of 21-desoxycortisone through bovine adrenal glands, the following substances were identified in the perfusate:—cortisone, allopregnan- 17α -ol-3, 11, 20-trione and a third substance not yet fully identified.—R.M.

CUPPS, P. T., LABEN, R. C. & MEAD, S. W. (1954). **The occurrence of extramedullary myelopoiesis in the adrenal cortex of the cow.**—*Cornell Vet.* **43**, 244-248. **2569**

The authors described the location of cell types in the cortex of the adrenal gland and related their presence to the different groups of cows studied.—C. W. OTTAWAY.

BARONE, R. (1954). **Les anomalies artérielles chez les équidés domestiques. [Anomalies of arteries in horses and donkeys.]**—*Bull. Soc. Sci. vét. Lyon*. **56**, 21-29. **2570**

Seventy horses and 30 donkeys were dissected and 59 were found to possess arterial anomalies, often slight and unilateral. Anomalies were more common in the donkeys than the horses.—A. SEAMAN.

BORTOLAMI, R. & BOMBARDIERI, R. (1954). Il tratto esofageo negli uccelli domestici. [**Anatomy and histology of the oesophagus in poultry.**]—*Nuova Vet.* 30, 284-296; 324-330; 377-386. 2571

The authors gave details of the anatomy and histology of the cervical-, median-, and thoracic sections of the oesophagus in fowls, guinea-fowls, turkeys, pheasants, pigeons, doves, geese and ducks. There is no muscularis mucosae in longitudinal strata, but functionally there is, in the circular layers.—F. R. PAULSEN.

SCACCINI, A. (1954). I muscoli della ghiandola tiroide negli equini. [**The muscles of the thyroid gland of the horse.**]—*Nuova Vet.* 30, 211-217. 2572

In human anatomy there are six muscles connected directly to the thyroid gland, but these have not been described in veterinary

See also absts. 2399 (histology of the adrenal glands of pigs); 2432 (viral protein and nucleic acid growth of bacteriophage); 2442 (proteins in bovine serum); 2497 (absorption and metabolism of cholesterol); 2500 (amino acids in milk proteins); 2514 (glycogen formation without insulin); 2606 (oestrogens in meat following oestrogen treatment); 2612 onset of rigor mortis in horse).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

DAHLBERG, A. C. (1954). **National Research Council studies on milk regulations and milk quality.**—*Amer. J. publ. Hlth.* 44, 489-496. 2574

The investigation was arranged to discover how the sanitary milk regulations affected the quality of pasteurized milk. The milk of eight cities was investigated for safety, bacterial counts, flavour, cleanliness, keeping qualities and so on. The average deliveries in the eight cities showed butter-fat to be 3.8% and solids-not-fat, 8.62%.

Each of the cities had a milk supply of good sanitary quality.—D. S. RABAGLIATI.

POTHMANN, F.-J. & HILLEBRAND, H. (1954). Die Re-Infektion der Milch nach der Pasteurisation. [**Re-infection of milk after pasteurization.**]—*Z. Hyg. InfektKr.* 140, 201-218. 2575

The authors investigated the cause of high bacterial counts in pasteurized milk from a dairy, and found that contamination occurred during cooling after heat treatment.—R.M.

MATSUI, T. (1954). **Outline of meat hygiene in veterinary public health in Japan.**—*WHO/FAO Expert Committee on Meat Hygiene.* (WHO/Zoon/32). pp. 12. [Mimeographed.] 2576

In the Japanese diet 72% of the animal protein is from sea fish. Butchers' meat accounts for about 9% of the remainder, this

literature. In 4 out of 5 horses no such muscles were found, but in the remaining horse there was a crico-glandular muscle which took the form of a pair of thin ribbons of pale-red muscle running from each body of the gland to the centre of the cricoid cartilage. In 12 donkeys there were crico-pharyngo-glandular muscles running from the bodies of the gland and the very broad isthmus (usual in donkeys) upwards and forwards to the arch of the cricoid cartilage and the wall of the pharynx.

—R. MACGREGOR.

GARLICK, N. L. (1954). **The teeth of the ox in clinical diagnosis. II. Gross anatomy and physiology.**—*Amer. J. vet. Res.* 15, 385-394. 2573

An account of the normal anatomy and physiology of the teeth of cattle, with reference to wear and aging.—R.M.

being provided by about 500,000 cattle and horses, one million pigs but only 30,000 sheep and goats. Slaughter is preceded by stunning with a mallet or poleaxe, but it is hoped to introduce electric stunning in the new abattoirs which are being planned. In the last four years there have been 32 outbreaks of food poisoning due to pork sausages or hams.

—R. MACGREGOR.

LEINATI, L. & PLEBANI, R. (1954). Comportamento della temperatura delle carni bovine dopo macellazione e sottoposte a refrigerazione. [**Temperature in bovine carcasses immediately after slaughter and during refrigeration.**]—*Clin. vet., Milano.* 77, 234-239. [English summary.] 2577

Observations made on 48 carcasses of oxen of all ages revealed that the temperature rose 1.9°C. during the first two hours after slaughter. At the third hour they were placed in a refrigerator at 2° to 4°C. Cooling was at first rapid but slowed gradually, being complete in 40-52 hours according to size.

—R. MACGREGOR.

HOPKIRK, C. S. M. (1954). **The veterinary service of Ethiopia.**—*N.Z. vet. J.* 2, 17-18. 2578

A note on veterinary work being done under UNRRA. The major diseases are rinderpest, bovine contagious pleuro-pneumonia and

fascioliasis. To encourage vaccination against rinderpest this part of the service is free.

—W. S. MARSHALL.

LEITAO, J. DE S. (1954). **The teaching of tropical veterinary medicine in Portugal.**—

See also abstr. 2265 (inspection of tuberculous carcasses).

Bull. epiz. Dis. Afr. **2**, 42-45. [In English and French.] [Mimeographed.] **2579**

A one-year postgraduate course in tropical medicine is given at the College of Veterinary Medicine at Lisbon University. The course is of a practical nature.—A.S.

REPRODUCTION AND REPRODUCTIVE DISORDERS

KOLLER, R. [Leiter der Bundesanstalt für künstliche Befruchtung der Haustiere in Wels.] (1952). **Künstliche Befruchtung in der Landwirtschaft der Vereinigten Staaten. [Role of artificial insemination in agriculture in the U.S.A.]** pp. 99. Vienna: Österreichisches Produktivitäts-Zentrum. **2580**

An account of a visit to the U.S.A., sponsored by the Technical Assistance Organization of the Marshall Aid Programme for Austria, for the study of the organization and technique in American artificial insemination establishments.—E.G.

DZIUK, P. J. GRAHAM, E. F., DONKER, J. D., MARION, G. B. & PETERSEN, W. E. (1954). **Some observations in collection of semen from bulls, goats, boars and rams by electrical stimulation.**—*Vet. Med.* **49**, 455-458. **2581**

The apparatus consisted of a rubber rectal probe bearing electrodes, wired to a variable transformer. An interrupted series of 5-sec. stimulations at successively increased voltage produced ejaculation. Rams (48) and a goat required about 3 stimulations of 2, 5 and 8 volts respectively. Boars (6) required 12-17 volts and up to 10 stimulations.

—C. C. BANNATYNE.

I. BRATTON, R. W. & FOOTE, R. H. (1954). **Semen production and fertility of dairy bulls ejaculated either once or twice at intervals of either four or eight days.**—*J. Dairy Sci.* **37**, 1439-1443. [Authors' summary modified.] **2582**

II. BRATTON, R. W., FOOTE, R. H. & HENDERSON, C. R. (1954). **Semen production and fertility of mature dairy bulls ejaculated either once or twice at 8-day intervals.**—*Ibid.* **37**, 1444-1448. [Authors' summary and conclusions modified.] **2583**

I. When single ejaculations were taken at 4-day intervals for 272 days from a group of 14 dairy bulls the average number of motile spermatozoa per ejaculate was 5.7×10^9 . The average 60- to 90-day per cent non-return rate

to more than 25,000 first services per group was 61.8 for the 4-day bulls and 64.8 for the 8-day bulls. This difference was not statistically significant ($P < 0.05$).

During an 88-day period immediately following the 272-day period the 8-day interval bulls were made to ejaculate twice every eighth day, under which conditions they averaged 5.7×10^9 motile spermatozoa per ejaculate and 12.8×10^9 per 8-day period. Other bulls, which were kept under the original conditions of a 4-day interval during this 88-day period averaged 12.6×10^9 motile spermatozoa on an 8-day basis. The 60- to 90-day per cent non-return rate to first service was 65.2 for the 4-day bulls and 67.9 for the 8-day bulls. Again, the difference was not statistically significant, ($P < 0.05$).

The authors concluded that one ejaculation every fourth day or two ejaculations every eighth day for periods as long as one year are not detrimental to semen production or fertility and that ejaculations at a rate of two per 8-day interval yield about 60% more motile spermatozoa than ejaculations at the rate of one per 8-day interval.

II. Ejaculates obtained from a group of 5 bulls at 8-day intervals for 360 days contained an average of 10.6×10^9 motile spermatozoa per ejaculate. In another comparable group from which ejaculates were obtained twice at 8-day intervals during the same period of time the first ejaculates contained an average of 10.3×10^9 and the second ejaculates an average of 6.9×10^9 motile spermatozoa. The average 60- to 90-day per cent non-return rate for first-service cows was 73.3 for the one ejaculate bulls. For the two-ejaculate bulls the 60-90 day non-return rate was 73.6 for the first ejaculates and 73.4 for the second ejaculates.

On the basis of the output of spermatozoa from the two-ejaculate bulls it was estimated that the 10 bulls in the experiment had a breeding potential, under present procedures, of nearly three-quarters of a million services and nearly a quarter of a million female progeny. Such potentials emphasize the need for

applying the best methods now available for testing and selecting the sires to be used so heavily.

DUNN, H. O., HAFS, H. D., BUCKNER, P. J., YOUNG, G. F., CONRAD, E. O., WILLETT, E. L. & LARSON, G. L. (1954). **A comparison of fertility of bovine spermatozoa stored at 5°C. and -79°C.**—*J. Dairy Sci.* **37**, 1429-1434. [Authors' summary slightly modified.] **2584**

An account of 6 field trials to compare the fertility of unfrozen semen stored at 5°C. for one day with that of frozen semen stored at -79°C. for periods varying from one day to 14 weeks. The average 60- to 90-day non-return rate was 71% for 6,663 inseminations with unfrozen semen and 59% for 2,163 inseminations with frozen semen.

The split-sample technique was used to compare the fertility of frozen semen stored at -79°C. in hermetically sealed glass ampoules and in polyethylene bulbs. There were 298 inseminations with samples stored in glass ampoules and 313 inseminations with samples stored in polyethylene bulbs. The 60- to 90-day non-return rates were 60.7% and 62.3%, respectively. The difference of 1.6 percentage units in favour of polyethylene bulbs as containers for frozen semen was not significant at the 5% level of probability.

ERB, R. E. & FLERCHINGER, F. H. (1954). **Influence of fertility level and treatment of semen on nonreturn decline from 29 to 180 days following artificial service.**—*J. Dairy Sci.* **37**, 938-948. **2585**

The authors studied the semen of 40 bulls with regard to the rate of decline in non-return to service. The bulls were clearly divisible into 4 fertility groups on the basis of 180-day non-return figures. Most returns to service occurred between the 25th and 29th days, and there was a high correlation between non-return figures at the 29th day and at the 180th day. This led the authors to suggest that the non-return figure at the 29th day would be a reliable early measure of breeding efficiency.

Treatment of the semen with penicillin plus streptomycin, or penicillin plus streptomycin and sulphanilamide reduced the numbers of returns to service for all fertility groups, the improvement being most marked in semen from the low fertility group.—A.S.

SKJERVEN, O. (1955). **Conception in a heifer after deposition of semen in the abdominal cavity.**—*Fertil. & Steril.* **6**, 66-67. **2586**

A heifer became pregnant after semen had

been deposited in the abdominal cavity in the region of the left ovary, by means of a cannula passing through the wall of the vagina near the fornix. S. suggested that this method of insemination could be used in heifers with a cervix too narrow to permit the passage of an insemination pipette.—R.M.

FOWLER, S. H. & ROBERTSON, G. L. (1954).

The relationship between femininity ratings and reproductive performance in gilts.—*J. Anim. Sci.* **13**, 940-948. **2587**

Seventy-nine gilts of the Poland China, Hampshire, and Berkshire breeds at weights of about 125 lb. were graded according to "femininity" as judged by the appearance of the head and neck. There was a significant correlation between "femininity", as assessed by this method, and the number of normal embryos present at 25 days after service. The reproductive superiority of the more "feminine" animals lies, apparently, in their higher rate of ovulation. The authors suggested that "femininity" may be a reflection of the level of pituitary activity.—A.S.

HAFEZ, E. S. E. (1954). **Oestrus and some related phenomena in the buffalo.**—*J. agric. Sci.* **44**, 165-172. [Abst. from author's summary.] **2588**

Thirty-one Egyptian domestic buffaloes of different ages were tested for the symptoms and duration of oestrus, and the incidence of *post-partum* oestrus and conception. Clinical examinations of the vagina were also carried out. The symptoms of oestrus were less intense than in cattle and there was no homosexual activity. Signs of pro-oestrus were observed in 13 cases with an average duration of 21.20 hours whilst metoestrus occurred in 21 cases with an average duration of 19.20 hours. The av. duration of oestrus was 28.47 hours. The onset and cessation of oestrus were either abrupt or gradual. The phenomenon 'split oestrus' was observed intervening between normal cycles in two of the cows. The av. interval to *post-partum* oestrus was 43.80 days. The av. number of silent heats per individual was 0.86. Conception took place after an av. of 1.71 services whilst the breeding efficiency was 93% in the calving buffaloes. Changes in the temperature of the vagina and in vaginal smears and the nature and amount of the secretion were not reliable indicators of oestrus. H. discussed these findings in relation to artificial insemination.

WILLIAMS, S. M. (1954). **Fertility in Clun Forest sheep.**—*J. agric. Sci.* **45**, 202-228. **2589**

An account of a detailed study of breeding management and results in 3 representative flocks for 20 months from September 1949. Particular interest was taken in the practice of breeding from ewe lambs. Replies to a postal questionnaire, sent to all registered flock owners, were analysed.—C. C. BANNATYNE.

ARBIB, G. & JORE D'ARCES, P. (1954). Essai d'une méthode de diagnostic de la gestation chez les femelles bovines. [A method for pregnancy diagnosis in cows.]—*Bull. Acad. vét. Fr.* **27**, 39-41. Discussion pp. 41-42. **2590**

The authors described a somewhat complicated qualitative chemical test for the presence of oestrogens in the urine, based on the Cuboni test, by which they claim to be able to diagnose pregnancy in cows from the 8th day of pregnancy onwards. Out of 71 positive tests there was only one erroneous result.—R.M.

YAMAUCHI, M. & ASHIDA, K. (1953). [Studies on the ovarian cyst in the cow. I. Hormonal treatment.]—*Jap. J. vet. Sci.* **15**, 317-325. [In Japanese. English summary.] **2591**

Cows having cystic ovaries were treated each with a single injection of 10,000 mouse units of chorionic gonadotrophin. Luteinization of follicular cysts, successive degeneration of the corpora lutea and normal follicular development and oestrus were observed in 10 out of 11 treated animals.—KOGI SAITO.

MIRAND, E. A., HOFFMAN, J. G., REINHARD, M. C. & GOLTZ, H. L. (1954). **Sex hormones as protective agents against radiation mortality in mice.**—*Proc. Soc. exp. Biol., N.Y.* **86**, 24-27. [Abst. from authors' summary.] **2592**

See also abst. 2394 (virus associated with vaginitis in cows).

ZOOTECHNY

LEE, D. H. K. (1953). **Manual of field studies on the heat tolerance of domestic animals.**—*F.A.O. Development Paper* No. 38, pp. 161. Rome: Food & Agric. Org. of the United Nations. **2596**

This manual suggests plans and techniques for the collection of information on the heat tolerance of domestic animals in natural conditions. Specific techniques are described for the study of the environmental conditions, methods are outlined for studying animal reactions and those indicating heat tolerance, the characters

Diethylstilboestrol and oestradiol benzoate were both effective in reducing mortality from acute lethal doses of X-irradiation in mice, when given for 7 days either before or after irradiation. The propionate and a cyclopentyl-propionate ester of testosterone were ineffective against the lethal dose of irradiation. No toxic effects of either the oestrogens or the androgens were noted when given for 7 days after irradiation.

RAJASEKARASETTY, M. R. (1954). **Studies on a new type of genetically-determined quasi-sterility in the house mouse.**—*Fertil. & Steril.* **5**, 68-97. **2593**

R. described partial and complete sterility in male mice associated with the presence of abnormal acrosomes of the spermatozoa.—R.M.

GREEN, E. L. (1954). **The genetics of a new hair deficiency, furless, in the house mouse.**—*J. Hered.* **45**, 115-118. **2594**

G. described a hereditary disturbance of hair growth in mice, characterized by early shedding and imperfect replacement of the hair coat, and by the presence of abnormally short hairs, to which he gave the name "furless". The condition depended on a single recessive autosomal gene, which was not an allele of, and was not linked with, the gene responsible for hairlessness in mice.—R.M.

PAPPENHEIMER, A. M., CHEEVER, F. S. & SALK, H. (1955). **Jaundice in mice due to anomalies of the biliary tract.**—*J. exp. Med.* **101**, 119-127. [Abst. from authors' summary.] **2595**

The authors described a disease characterized by progressive jaundice and affecting about 2% of a breeding stock of mice. The disease is caused by congenital absence of the terminal segment of the common bile duct, or of the intrahepatic ducts.—A.S.

influencing heat tolerance and the conditions influencing animal reactions are discussed. Finally a brief review is given of how the information obtained could be applied to the practical problem of livestock improvement.—A. ACKROYD.

ITTNER, N. R., BOND, T. E. & KELLY, C. F. (1954). **Increasing summer gains of livestock. With cool water, concentrate roughage, wire corrals, and adequate shades.**—*J. Anim. Sci.* **13**, 867-877. [Authors' summary modified.] **2597**

The authors studied methods of keeping livestock cool during summer under Californian conditions. The mean air temperatures during the 2 test periods of the study were 91.8°F. and 91.3°F. The temperature of the cool drinking water was $65 \pm 2^\circ\text{F}$. for both periods and that of the uncooled water was approx. 89°F . From their work so far they concluded that there are 4 ways of helping cattle keep cool and make faster gains during the summer:—

(1) Shades should be provided giving 60 sq. ft. per animal. They should be constructed of an insulating material like hay or a reflecting material like aluminium, placed 10–12 ft. above ground. (2) Cool drinking water should be provided: 3 out of 4 tests, significant at the 1% level, indicated that steers with access to cool drinking water made a daily gain of from 0.26 to 0.44 lb. more than those receiving uncooled water. (3) Concentrates should be added to the roughage ration: Hereford steers on cold water and lucerne (alfalfa) hay gained 1.51 lb. per head per day, while those on cold water-and-hay plus grain made 2.01 lb. On warm water the hay group gained 1.18 lb. while the hay and grain group gained 1.57 lb. These differences are statistically significant at the 1% level. (4) Corrals should be made of wire pens surrounded by green vegetation rather than of heavy wooden materials: measurements indicate an effective difference in environmental temperature of 5.5° to 6°F . between these two types of corral. The authors considered that the improved weight gains justified the measures they suggested.

DYRENDahl, S., SWAHN, O., BJÖRCK, G. & HELLVING, L. (1953). **Artificial raising of baby pigs.**—*Acta agric. scand.* **3**, 334–354. [In English.] Reprinted in *Medd. Veterinärhögsk., Stockh.* **27**. (1952/53). **2598**

Baby pigs were kept in brooders at 25° to 27°C ., from 2–4 days until up to 4 weeks of age and then transferred to pens. They were fed a synthetic milk mixture and later also offered a starter meal. The synthetic milk consisted of 6 parts water to one part of a mixture having the following composition %: dried skim milk 76; lard 5; rapeseed oil 5; lecithin 1; dried sulphite yeast 3; glucose 5; cane sugar 5; and added minerals and vitamins. During the first 3 weeks growth was below, but subsequently became higher than, that for pigs fed in the usual way.

—W. H. PARR.

MACLEOD, R. A. & BRUMWELL, C. A. (1954). ***In vitro* cellulose digestion by rumen micro-organisms and its stimulation by fishery by-products.**—*Appl. Microbiol.* **2**, 130–135. **2599**

The authors found that the digestion of cellulose by the ruminal microflora *in vitro* was stimulated by the addition of the following by-products of the fishery industry:—whale solubles, herring solubles, herring stickwater, halibut hydrolysate. The stimulating action of these substances was due to factors other than amino-acids and carbohydrates. It was suggested that the utilization of poor quality forage by ruminants would be improved by the addition to the diet of such by-products.—R.M.

LUCAS, I. A. M. (1954). **Some further observations upon pigs reared in cold pens.**—*J. agric. Sci.* **44**, 369–376. [Author's summary slightly modified.] **2600**

The experiment reported here involved 32 pigs from birth to bacon weight. During the 9 weeks before weaning 16 pigs were reared on damp cold floors in a cold building and 16 on dry cold floors in the same building. After weaning all the floors were kept dry.

Before weaning 4 out of the 16 pigs under each treatment died, but only one, which was in the wet cold floor group, was suspected of having a liver disease which has been described by Naftalin & Howie [*V.B.* **21**, 814]. A greater incidence of this disease was expected to occur under the cold environmental conditions of the experiment.

After weaning one deformed pig was killed and three other pigs were killed at 40 weeks old. The latter three all had the liver disease. There was evidence that the disease had developed after the pigs were weaned and this indicated that it cannot necessarily be prevented by the provision of dry conditions in a cold house.

L. discussed the possibility that the liver disease is caused by a virus or low nutritional status interacting with the effects of cold environmental conditions.

ANON. (1954). **Great Britain. Report of the Sub-Committee on the preparation of a system of description of colours and markings of horses.** pp. 8. London: Royal College of Veterinary Surgeons. **2601**

A list of terms recommended for the uniform description of colours and markings of

horses for identification purposes, together with a specimen form suitable for recording the identifying characteristics of a horse.—R.M.

KLOSTERMAN, E. W., KUNKLE, L. E., GERALAUGH, P. & CAHILL, V. R. (1954). The effect of age of castration upon rate and economy of gain and carcass quality of beef calves.—*J. Anim. Sci.* **13**, 817-825. [Authors' summary modified.] **2602**

The authors compared the thriftiness and carcass quality of early and late castrated steers and of bulls. They found no significant differences in these respects between steers castrated at approx. one month and those castrated after weaning at approx. 7 months. Bulls grew more quickly than steers and were more thrifty, though they were not so well finished as the steers at the time of slaughter. Their carcasses, though of lower grade, had less waste fat and a higher proportion of edible meat, and they yielded edible meat of comparable quality at a cost of 10-12 cents per lb. less than steers. From this it seems that it is more economical to fatten bulls than steers, provided that a high finish is not required.

SYKES, R. L. (1954). An investigation into the protection of dried hides and skins.—*Colon. Pl. Anim. Prod.* **4**, 97-109. **2603**

S. investigated the composition of efficient insecticidal, fungicidal, and bactericidal dips for raw skins previous to drying. No single chemical was suitable for the three purposes, but a mixture of sodium pentachlorophenate and "dieldrex 15" was satisfactory.—S. E. Fox.

BENOIT, R. (1954). Lésions constatées sur des cuirs de veaux. [Defects in calfskin.]—*Schweiz. Arch. Tierheilk.* **96**, 232-244. [In French. English, German and Italian summaries.] **2604**

Damage to calf skins, revealed in the tannery after dehairing, consisted of pits in the grain surface, 0.2-2.0 cm. in diameter. They occurred chiefly on calves 3-6 weeks old, and were produced by *Trichodectes scalaris*. Electric goads with fixed points caused similar damage.—S. E. Fox.

DEMPSEY, M. (1954). Some diseases causing skin lesions, and the effects on leather made from such diseased skins.—*Bull. epiz. Dis. Afr.* **2**, 269-277. [French translation: pp. 317-325.] **2605**

Damage to the grain surface of skins, rendering them useless for good-quality leather,

is produced by demodectic or sarcoptic mange, ticks, streptothricosis, or pox. Rinderpest causes the skin of cattle to become too thin for the production of good sole leather. The types of damage were illustrated by 11 photomicrographs of skin sections.—S. E. Fox.

STOB, M., ANDREWS, F. N., ZARROW, M. X. & BEESON, W. M. (1954). Estrogenic activity of the meat of cattle, sheep and poultry following treatment with synthetic estrogens and progesterone.—*J. Anim. Sci.* **13**, 138-151. [Authors' summary modified.] **2606**

Residual oestrogens were demonstrable in the meat of steers, wethers and fowls that had been treated with synthetic oestrogens. The muscle and liver of steers contained residual oestrogen, but in sheep only the muscle had detectable oestrogenic activity. In poultry, the amount of hormone present was reduced quite markedly with time after treatment. In sheep the corresponding loss of activity was slight.

Generally speaking, the amount of hormone retained varied directly with the amount used in treating the animals.

The only effect of cooking on residual oestrogen was a possible loss of amount of activity in the rendered fat or tissue juices but heat (120° to 150°C. for 2 hours) *per se* had no effect on the hormone.

In all probability, the amount of hormone present in beef muscle and liver does not exceed 0.01 µg. per g. of dried tissue and 0.1 µg. per g. of dried tissue in the case of sheep muscle and chicken meat.

SHAKLEE, W. E. & KNOX, C. W. (1954). Hybridization of the pheasant and fowl.—*J. Hered.* **45**, 183-190. **2607**

Dark and Silver Cornish hens mated naturally and by artificial insemination with cock pheasants produced 1,409 eggs, 3.5% of which were fertile. One female and two male hybrids hatched after 26 days of incubation. They all resembled their male parent although in many respects they were true intermediates. The males had neither the comb, wattles and lobes of domestic fowls nor the ear tufts and red face markings of pheasants. Length and colour of plumage, and size, position and shape of spurs were intermediate between the two species. The shanks were slate grey. When adult the hybrids showed no sexual activity, and at P.M. examination the gonads were found to be underdeveloped.—E.G.

TECHNIQUE AND APPARATUS

NORTHROP, J. H. (1954). **Apparatus for maintaining bacterial cultures in the steady state.**—*J. gen. Physiol.* **38**, 105-115. **2608**

N. described an apparatus for providing a continuous and even flow of liquid culture medium through a culture flask, in order to obtain a uniform growth rate of the culture. The flow of culture medium was controlled by a photo-electric cell, activated by a light beam passing through the culture flask.—R.M.

LEES, K. A. & TOOTILL, J. P. R. (1955). **Microbiological assay on large plates. I. General considerations with particular reference to routine assay. II. Precise assay.**—*Analyst*, **30**, 95-110 & 110-123. [Authors' summaries modified.] **2609**

I. The authors described methods of performing microbiological assay on large seeded agar plates involving about 50 to 150 zones each.

They described the means whereby non-uniformity of response over such large areas is overcome and gave details of methods suitable for routine assay of several samples simultaneously with a standard assay error of about $\pm 5\%$.

II. The authors described methods of conducting precise large plate microbiological assays suitable for relatively pure preparations of antibiotics or growth factors. They emphasized the need for careful checks of the assumptions on which the assay is based ranging from the considerations dealing with the dose-response lines to the purely physical operations of weighings and dilutions. The methods were designed to allow the above factors to be tested directly. They provide for the simultaneous assay of up to three unknown quantities with standard error of $\pm 1\%$.

HEUNERT, H.-H. (1953). **Praxis der Mikrophotographie. [Practical microphotography.]** pp. 94. Berlin, Göttingen & Heidelberg: Springer-Verlag. DM 15.60. **2610**

A brief introductory chapter on basic optical principles is followed by chapters describing types of microscopes and cameras used in photomicrography, refracted, reflected and polarized light techniques, phase-contrast photomicrography, calculation of enlargement, selection of photographic materials, colour filters, length of exposure and development of negatives. This handy booklet incorporates many useful technical hints on focusing, cleaning of apparatus, keeping of records etc. The final chapter deals with close-up photography of macroscopic objects. This work, written for the scientific worker, is very well produced. There are over a hundred illustrations.—E.G.

FLEWETT, T. H., ZINNEBANN, K. S., OLDFIELD, M. W. C., SHUCKSMITH, H. S. & DEXTER, F. (1955). **A single-stage method of freeze-drying arteries for grafting.**—*Lancet*, **268**, 888-890. [Authors' summary copied *verbatim*.] **2611**

By the use of a special but simple closure head for the tubes in which the graft is dried, the insertion of a deep-cooled moisture-trap between the vacuum pump and the manifold, and the provision of high-vacuum stopcocks between the manifold and the drying tubes, arterial grafts may be freeze-dried in a single operation in five to fifteen hours. Once the freeze-drying process has been started, the apparatus requires no further attention until sealing.

The arteries are sterilised with a 1% solution of liquid ethylene oxide in saline solution. Special precautions are required for handling this substance.

MISCELLANEOUS

LAWRIE, R. A. (1953). **The onset of rigor mortis in various muscles of the draught horse.**—*J. Physiol.* **121**, 275-288. **2612**

Changes in pH, extensibility, creatine

phosphate and adenosine-triphosphate were followed during the course of rigor mortis in various skeletal muscles of the draught horse in nitrogen at 37°C. Similar observations were made on heart muscle.—W. S. MARSHALL.

REPORTS

GREAT BRITAIN. (1954). **Animal Diseases Research Association, Moredun Institute, Gilmerton, Edinburgh. Annual report and accounts. 1953-1954.** [GREIG, J. RUSSELL] pp. 20. Edinburgh: The Institute. **2613**

Membership of the Association at the end of the year was 1,511—comprising 720 life members and 791 annual members.

The various sources of income, including grants, legacies, donations and contributions,

together with a statement of accounts have been incorporated in the Report of the Board of Directors.

At the suggestion of the Executive Committee Dr. Russell-Greig this year, his last as Director of the Moredun Institute, gave a brief retrospect over the period of his office instead of the usual review of the year's activities. He recalled the origin of ADRA and the steady progress culminating in the present-day wealth of knowledge of sheep disease such as braxy, lamb dysentery, louping-ill and scrapie. Great advances have also been made in the study of metabolic disorders of cattle and sheep. The progress made in biological science has considerably reduced economic losses from animal disease. R. G. concluded his address by emphasising the importance of the new Department of Parasitology and expressing the hope that it will provide a valuable centre for research into this very important subject which includes not only external parasites but also parasitic worms, one of which, *Nematodirus*, has recently proved a great menace to lambs.

—T. E. GATT RUTTER.

GREAT BRITAIN. (1954). *The Incorporated Liverpool School of Tropical Medicine. Fifty-fourth annual report 1952-53.* pp. 48. Liverpool: Lee & Nightingale (Printers) Ltd. 2614

The number of students attending diploma classes was satisfactory, the majority coming from Asia. There is, however, a continual and regrettable lack of members from the Colonial Service. Classes in parasitology and entomology for the B.V.Sc. and M.R.C.V.S. were attended by 36 students.

One of the most interesting observations made during the year was the suppression of malaria parasites by milk. The appearance of the parasite after the intraperitoneal inoculation of infective blood was prevented in most animals just so long as they were allowed to subsist on a diet of milk and certain vitamins. The same result has also been demonstrated with human milk and pasteurized cows' milk and for various types of proprietary tinned milk.

—D. S. RABAGLIATI.

CANADA. (1952). *Province of Saskatchewan. First annual report of the Animal Industry Branch, being an extract from the annual report of the Department of Agriculture of Saskatchewan, for the twelve months ended March 31, 1952.* [BROCKELBANK, E. E.]—*Rep. Saskatch. Dep. Agric.* pp. 83-150.

Regina: Thos. H. McConica. [Items of veterinary interest pp. 134-150.] 2615

The report of the Veterinary Division deals briefly with the FOOT AND MOUTH DISEASE outbreak in the Province at that time. BRUCELLOSIS was the most important disease during the year. HAEMORRHAGIC SEPTICAEMIA was a major condition and BLACKLEG and MALIGNANT OEDEMA caused numerous fatalities. MASTITIS, STERILITY, FOOT ROT, MINERAL DEFICIENCIES, SWINE ERYSIPELAS, ATROPHIC RHINITIS, NUTRITIONAL ENTERITIS, NEWCASTLE DISEASE, TUBERCULOSIS and other diseases are discussed. A summary of disease conditions is given in tabular form.

Veterinary Service Districts have been formed. The veterinarian receives a \$2,000 grant in place of charging mileage. There are 21 districts in operation. BRUCELLOSIS and calfhood vaccination are dealt with at length. The entire Province has been declared an area for the eradication of bovine TB.

—R. GWATKIN.

CANADA. (1953). *Province of Saskatchewan. Second annual report of the Animal Industry Branch, being an extract from the annual report of the Department of Agriculture of Saskatchewan, for the twelve months ended March 31, 1953.* [BROCKELBANK, E. E.]—*Rep. Saskatch. Dep. Agric.* pp. 87-146. Regina: Thos. H. McConica. [Report of Veterinary Division pp. 133-146.] 2616

This includes reports of the Dairy, Live Stock, Poultry and Veterinary Divisions. The last-named is the report of the Provincial Veterinarian and occupies 14 pages. A brief general review of the work of the Department is given, followed by notes on Veterinary College Scholarships, cattle sales, the 1952 outbreak of FOOT AND MOUTH DISEASE, RABIES, veterinary service districts, the BRUCELLOSIS programme, tuberculin testing, diseases in horses, cattle, pigs, sheep and poultry. Tabulated summaries of the disease conditions are given.—R. GWATKIN.

CANADA. (1954). *Province of Saskatchewan. Third annual report of the Animal Industry Branch, being an extract from the annual report of the Department of Agriculture of Saskatchewan, for the twelve months ended March 31, 1954.* [BROCKELBANK, E. E.]—*Rep. Saskatch. Dep. Agric.* pp. 103-165. Regina: Lawrence Amon. [Report of the Veterinary Division pp. 152-165.] 2617

Twenty-four Veterinary Service Districts

were in operation during the year. Calls for disease investigation in areas not having such service were high. The BRUCELLOSIS control programme comprises blood testing and calf-hood vaccination. The commonly reported diseases in cattle were BRUCELLOSIS, HAEMORRHAGIC SEPTICAEMIA, ANAEROBIC INFECTIONS, MASTITIS, INFECTIOUS VAGINITIS, FOOT ROT, KERATITIS, STERILITY AND MINERAL AND VITAMIN DEFICIENCIES. In pigs, SWINE ERYSIPELAS, ATROPHIC RHINITIS, HAEMORRHAGIC SEPTICAEMIA and ENTERITIS were reported. *Erysipelothrix (Listeria) monocytogenes* infection was diagnosed in a flock of sheep. In poultry, NEWCASTLE DISEASE is apparently quiescent. TUBERCULOSIS, FOWL TYPHOID, COCCIDIOSIS and Salmonella infections are discussed. No serious outbreaks of disease were reported in fur-bearing animals. Many dogs were vaccinated against RABIES.

—R. GWATKIN.

CANADA. (1954). **Province of Alberta. Annual report of the Department of Agriculture for the year 1953.** [URE, D. A.] pp. 171. Edmonton: Queen's Printer. **2618**

The disease picture was not serious except with regard to RABIES and SWINE ERYSIPELAS. RABIES became widespread during the winter, occurring in every section of the Province. Estimated cases in livestock numbered from 260–370. There were 106 confirmed cases in 15 species of animals. There were widespread outbreaks of SWINE ERYSIPELAS in Northern and Central Alberta resulting from an apparent increase in virulence of the organism.

Other subjects dealt with are EQUINE ENCEPHALOMYELITIS, TUBERCULOSIS, BRUCELLOSIS, "SHIPPING FEVER" of cattle, extension activities, diseases of cattle, pigs, horses and fur animals. The Veterinary Laboratory report lists the examinations made and the many other activities.—R. GWATKIN.

AUSTRALIA. (1954). **Northern Territory Administration, Animal Industry Branch, eighth annual report, 1953/54. (Covering activities for year ending 30/6/54.)** [ROSE, A. L.] pp. 31. [Mimeographed.] **2619**

The incidence of TUBERCULOSIS in cattle in the Northern Territory appears to be greater than was previously suspected.

The Alice Springs Pastoral District has been free from BOVINE CONTAGIOUS PLEURO-PNEUMONIA for three years, but cattle travelling to South Australia are likely to re-introduce

the disease. Some 13,500 cattle were vaccinated before trucking to South Australia. Vaccinated cattle sold for £3 to £6 more per head because many were taken for further fattening before slaughter. Vaccination carried out by trained field staff of the Animal Industry Branch is more efficient than when done by stockmen.

The laboratory staff will prepare vaccine for the future needs of the Northern Territory. Research is directed towards a highly effective, innocuous vaccine and the development of a simple rapid agglutination test. So far the test is not as sensitive as the complement-fixation test. It was found that vaccine may become non-viable when subjected to normal field stresses.

TICK FEVER continues to be important in certain areas and is a hazard to travelling cattle. *Anaplasma marginale* was present in most cases, usually with *Babesia argentina*. Cattle have been immunized at the Research Institute and serve as suppliers of blood for inoculation of other cattle when required.

MYXOMATOSIS was present throughout the rabbit infested areas and appears to have kept the population at low levels.

Dry seasons and more effective dipping have restricted the cattle tick (*Boophilus microplus*) to its normal natural distribution and travelling herds are no longer likely to spread ticks.

OSTEOMALACIA (PEG-LEG) in cattle was prevalent during the drought. A device, in use in other states and countries for providing sodium orthophosphate in water troughs, has been modified for Northern Australian conditions and its use has given effective control.

Further work on KIMBERLEY HORSE DISEASE confirmed that *Crotalaria retusa* is the sole cause. Where areas rich in this plant have been fenced off, the disease has been controlled.

Investigations on GEORGINA RIVER POISONING showed that the gidgee (*Acacia georginae*) was the cause of mortality in certain areas. In other areas of different geological formations the plant does not appear to be toxic.

Feeding experiments with g. pigs showed that *Atalaya hemiglauca* was always toxic. The immature leaves are most poisonous and there are differences in toxicity of leaves collected from different regions. *Eremophila macdonnellii*, *Sarcostemma australe* and *Nicotiana sauveolens* were proved toxic to rats and g. pigs. Wild Hops (*Rumex* sp.) was not toxic.

There are general comments on seasonal

conditions, and details of livestock numbers and movement, and of diagnostic work at the Research Institute.—H. McL. GORDON.

AUSTRALIA. QUEENSLAND. (1953). **Annual report of the Department of Agriculture and Stock for the year 1952-53.** pp. 118. Brisbane: A. H. Tucker, Govt. Printer. [Report of Division of Animal Industry pp. 66-96. (WEBSTER, W.).] **2620**

The success of penicillin in the control of MASTITIS has led to a neglect of improved sanitation and milking technique. The large number of milk samples (1,107) submitted for bacteriological examination indicated the importance of the penicillin-resistant forms of MASTITIS.

BOVINE TB. has a low incidence in the greater part of the state, but as many as 50% reactors have been detected in isolated dairy herds and in several regions there have been up to 7% condemnations of cattle from beef herds at abattoirs. Details are given of testing carried out under the control scheme. TB. was recorded in about 1% of pigs slaughtered. Lesions, resembling TB., in the submaxillary lymph nodes of pigs, are found to be due to *Corynebacterium equi*. SALMONELLOSIS occurred among cattle, the most serious losses being in bulls during rail transit. STERILITY continues to be of prime economic importance in the dairy industry. With better control of BRUCELLOSIS by Strain 19 vaccination other forms of sterility have been diagnosed, including VIBRIOSIS and TRICHOMONIASIS.

MELIOIDOSIS is well established in goats in the Townsville area. Three cases of MASTITIS, two acute, were shown to be due to the causal organism of MELIOIDOSIS.

LEPTOSPIROSIS was prevalent and besides causing considerable mortality was responsible for loss of production in cows. *L. pomona* was chiefly responsible, but the presence of *L. mitis* is suspected. Pigs are actively associated with the maintenance of the disease and outbreaks have followed the introduction of affected pigs. Streptomycin gave reasonably satisfactory results in calves.

During the process of immunizing cattle it was not always easy to control the reaction to *Babesia bovis* with the recognized drugs and repeated doses were often required. The strain used had never been exposed to any of the drugs previously.

Studies on FLY STRIKE in sheep showed that if a strip 12 to 15 in. wide extending from the shoulder to the butt of the tail is jettied

(penetrating spray) with 0.3% aldrin or 0.4% dieldrin the fleece remains toxic for first-stage larvae of *Lucilia cuprina* for 18 to 20 weeks. D.D.T. at 0.5 to 1.0% and benzene hexachloride at 0.1% γ -isomer allowed development of larvae after 12-14 weeks.

Siphona (Lyperosia) exigua infestation showed extensions during the wet year.

A wet season in 1953 was followed by heavy infestations with *Boophilus microplus*. Control was difficult where ticks resistant to arsenic and benzene hexachloride were present. There was no evidence of resistance to D.D.T.

Herds have been treated by spraying for 3 to 5 years with toxaphene and dieldrin without any evidence of ticks becoming resistant. There was some suggestion of resistance developing in a herd sprayed with chlordane. In southern Queensland tick control was achieved in dairy herds by spraying only during the warmer months.

Outbreaks of POST-PARTURIENT HAEMOGLOBINURIA in dairy cows were associated with low phosphorus intake.

ST. GEORGE DISEASE [V.B. 23, 1829] reappeared in cattle after several years.

Cases of chemical poisoning included THALLIUM and BENZENE HEXACHLORIDE POISONING of pigs and fowls respectively.

Losses were caused by the following poison plants:—*Gastrolobium grandiflorum* and *Wedelia asperima* in sheep, and *Lantana camara*, *Pteridium aquilinum*, *Xanthium pungens*, *Cestrum Parqui*, *Myoporum acuminatum*, *Pimelia* spp., *Portulaca oleracea*, *Castanospermum australe*, *Nerium oleander*, *Trema aspera*, *Datura stramonium* and *Passiflora* sp. in cattle.

Plants suspected of causing poisoning were *Cheilanthes tenuifolia* and *Eremophila maculata* (of sheep), *Xanthium pungens* and *Cestrum Parqui* (of fowls), *Melia dubia* (of pigs). Seeds of a species of *Ipomoea*, present in a sample of thrashed sorghum, were suspected of having caused DIARRHOEA in pigs that had been fed the crushed grain; pigs fed the whole grain remained healthy. In sheep HYPOCALCAEMIA resulted from the ingestion of plants which contain large amounts of oxalic acid [Soda bush (*Threlkeldia proceriflora*), Pigweed (*Portulaca oleracea*) and Roly poly (*Bassia* sp.)]. TALLEUDGERA HORSE DISEASE, thought to be due to ingestion of Crofton Weed (*Eupatorium adenophorum*), was not produced experimentally in horses which had consumed 2 to 3 tons of the weed. OESOPHAGEAL AND STOMACH ULCERATION in horses in northern Queensland is caused by ingestion of *Crotalaria aridicola*. In central Queensland *C. trifoliatum* was being eaten by affected horses,

but a brief feeding trial did not produce the disease. Feeding experiments were carried out with *Acacia cambagei* (leaves not toxic for sheep), *Pimelia linifolia* (not toxic for cattle), *Myoporum diffusum* (slight depression in cattle), *Crotalaria trifoliolatum* and *C. retusa* (no ill effects in a horse), *Xanthorrhoea quadrangulatus* (loss of condition but no symptoms of WALLUM DISEASE in a steer), *Cycas media* (toxic for cattle), *Datura stramonium* (seeds not toxic for pigs).

The report of the Sheep and Wool Branch deals with drought feeding of sheep, urea feeding trials, adaptation to environment, surgical treatment against BLOWFLY STRIKE (Mules operation), neo-natal mortality of lambs, milk yield of ewes and environmental factors affecting conception rates.—H. McL. GORDON.

NEW ZEALAND. (1954). Department of Agriculture. Annual Report of the Director-General of Agriculture for the year ended 31 March 1954. (Includes also Annual Report of Marketing Division, (formerly Marketing Department, for the year ended 31 August 1953). [HOLYOAKE, K. J.] pp. 167. Wellington: R. E. Owen, Govt. Printer. [Report of Animal Research Division pp. 37-67. Report of Animal Industry Division pp. 68-93.] 2621

The diagnosis Section of the Research Division at Wallaceville has grown rapidly for whereas in 1951, only 13,829 specimens were examined, in 1953 the total amounted to 23,843.

ENCEPHALOMALACIA of lambs was first diagnosed on about 20 premises during the last few years. Research work was carried out on sheep breeding, increase in fecundity and on improving the fertility of sheep by crossing. Cattle breeding projects included artificial breeding, nutrition and research on milking machines and milking methods.

Horses in agriculture continue to decrease, but it is hoped to build up on a small scale, a horse trade to India on the lines of the Australia-Indian horse traffic.

Scheduled Diseases include TUBERCULOSIS, ACTINOMYCOSIS (and ACTINOBACILLOSIS) and JOHNE'S DISEASE. Compulsory tuberculin tests on dairy herds registered for town supply, were carried out on 75,954 cattle with 4,058 reactors. Non-scheduled diseases included SALMONELLOSIS, LEPTOSPIROSIS, CONTAGIOUS ABORTION, FOUL IN THE FOOT and REDWATER, to mention only a few of them.—D. S. RABAGLIATI.

COLONY OF NORTH BORNEO. (1954). Annual Report on the Department of Agriculture for

the year 1953. [Cox, J. K.] pp. 38. Jesselton: Govt. Printing Department. 2622

The estimated livestock population was: cattle, 16,500; buffaloes, 66,000; goats, 17,000; pigs, 66,000; and poultry, 2,000,000.

In the field of Animal Husbandry activities have been directed towards assistance and advice to livestock owners.

No serious outbreaks of animal diseases occurred and very satisfactory progress has been reported in the control of SURRA in horses. The major problem affecting livestock has been PARASITIC INFESTATION (internal and external) in the control of which various parasiticides were used. A severe outbreak of dog DISTEMPER/HARD PAD DISEASE occurred early in the year.—T. E. GATT RUTTER.

GRENADA. (1954). Report on the Agricultural Department for the year 1952. pp. 42. St. George's, Grenada: Govt. Printer. [Items of veterinary interest pp. 19-21, PITT, E. A. M.] 2623

The veterinary officer made 59 calls to see animals suspected of contagious disease, but most proved to be negative. RABIES was first reported in Grenada in 1952, in a cow. Vampire bats or a mongoose were incriminated, but neither was proved to be the cause.

—D. S. RABAGLIATI.

MAURITIUS. (1954). Annual Report of the Department of Agriculture for the year 1953. pp. 64. Port Louis, Mauritius: J. Eliel Felix, Govt. Printer. [Contains the report of the Senior Veterinary Officer (DARNÉ, A.) pp. 35-36.] 2624

The Veterinary Section continues with its control measures against disease. The most important are TUBERCULOSIS, CONTAGIOUS ABORTION, PULPY KIDNEY DISEASE in lambs, PARASITIC DISEASES and FOWL POX. The incidence of TB. in herd cattle is rather high, but it is expected that with the policy adopted the position will improve.

Some 6,000 dairy cows were artificially inseminated with a conception rate of 70%.

—D. S. RABAGLIATI.

SARAWAK. (1954). Department of Agriculture Annual Report for 1953. [MILLER, R. W. R.] pp. 21. Kuching: F. W. Lane, Govt. Printer. 2625

Veterinary activities were on a limited scale because the Department lacked the services of a Veterinary Officer.—T. E. GATT RUTTER.

ZANZIBAR PROTECTORATE. (1954). **Annual Report of the Department of Agriculture, 1953.**

[BRIANT, A. K.] pp. 29. Zanzibar: Govt. Printer. Shs. 2/- [Items of veterinary interest pp. 5-7 and 15-17.] 2626

Livestock imports and the slaughter rate were higher than in previous years. Importation from Dar es Salaam was suspended in June owing to an outbreak of RINDERPEST in that township.

A large-scale test for *Brucella abortus* infection revealed a higher incidence than anticipated. Quinapyramine sulphate (antrycide methyl sulphate) gave good results in the treatment of TRYPANOSOMIASIS. EAST COAST FEVER control included dipping of dairy cattle and of cattle grazing on Government land.

Selective breeding for milk production continued at the Kizimbani Stock Farm where the general health of the animals was good. The average daily milk index was 8.1 lb. per cow—the highest ever—and the herd average was likewise higher than in previous years.

Grazing trials were carried out.

Ranching was not wholly satisfactory—owing to severe loss of condition of unknown origin and tentatively diagnosed as MINERAL DEFICIENCY. TRYPANOSOMIASIS was highest in March, April, May and September, 2.2% of the herd being affected. Results of quinapyramine (antrycide) treatment were considered excellent.

A one-year Tsetse and TRYPANOSOMIASIS survey of twenty square miles of cloves and coconut plantation country was completed.

—T. E. GATT-RUTTER.

TANGANYIKA. (1954). **Annual Report of the Department of Veterinary Services, 1953.**

[DAWE, E.C.S.] pp. 57. Dar es Salaam: Govt. Printer. Shs. 3/50. 2627

The Headquarters of the Veterinary Department is being transferred from Mpwapwa to the capital, Dar-es-Salaam.

European settlers immunize their animals against ANTHRAX and BLACKLEG and the Department immunizes the cattle passing along the trade routes. TUBERCULOSIS occurs in the Southern Highlands and in Dar-es-Salaam. There were no fresh outbreaks of BOVINE CONTAGIOUS PLEURO-PNEUMONIA.

TICK-BORNE DISEASES are enzootic. EAST COAST FEVER is the most important disease economically, outside the tsetse fly infested areas. The situation remains unfavourable regarding TRYPANOSOMIASIS and tsetse fly; as gains are made in tsetse areas the fly advances into new country. Dimidium bromide is used in treatment.

FOOT AND MOUTH DISEASE is enzootic in a mild form. Only one case of RABIES was confirmed, in a dog. A total of 1,607,760 cattle were immunized against RINDERPEST.

HELMINTHIASIS is widespread in all livestock.

A Livestock Census revealed:—cattle, 6,632,588; sheep, 3,066,158; goats, 4,383,692; donkeys, 125,791; other equine species, 398; and pigs, 15,823.—J. A. GRIFFITHS.

U.S.A. ALABAMA. (1954). **62nd and 63rd Annual Reports, January 1, 1951–December 31, 1952, Agricultural Experiment Station of the Alabama Polytechnic Institute.** [SMITH, E. V.] pp. 62. Auburn, Alabama. 2628

Research in Dairy Husbandry included a comparison of winter pasture, molasses-sprayed peanut hay, and maize silage; the value of grain for dairy heifers on pasture; the merits of outdoor *versus* indoor pens for dairy calves; the effect of certain antibiotics on the reproductive efficiency of the semen of dairy bulls used in artificial breeding.

Under Poultry Husbandry, the immunization of chickens against COCCIDIOSIS, the life cycle of *Eimeria tenella*, and the effects of mosquitoes on poultry were studied.

—D. S. RABAGLIATI.

U.S.A. (1954). **University of Florida. Annual Report of the Agricultural Experiment Stations for the fiscal year ending June 30, 1953.** pp. 354. Gainesville, Florida: The University [Items of veterinary interest pp. 149-155.] 2629

The University has built a Poultry Disease Diagnostic Laboratory, which was being equipped for increased diagnostic work and research. Research is also carried out on bovine MASTITIS and FOWL LEUCOSIS with special reference to the role played by nucleo-proteins.

While special attention is given to the control of both internal and external parasites, other conditions mentioned include ANAPLASMOSIS, VIBRIONIC ABORTION and STERILITY in dairy cattle and factors influencing the development of PULLET DISEASE.—D. S. RABAGLIATI.

U.S.A. (1954). **Maryland. 66th Annual Report of the University of Maryland Agricultural Experiment Station, 1952-1953.** [HAUT, I. C.]—*Bull. Md. agric. Exp. Sta.* No. A-78. pp. 96. 2630

Research into Animal Husbandry was concerned mainly with the development of new

techniques for the evaluation of beef breeding animals, the testing of Maryland No. 1 breed of pigs, and studies on BLOAT in ruminants.

In the Animal Pathology Section, work continued on vaccine control of BRUCELLOSIS in cattle, ANAPLASMOSIS in cattle, bovine KETOSIS,

bovine MASTITIS, and on a search for a NEWCASTLE DISEASE vaccine.

In the poultry section work was done on improved methods of breeding, physiology of production and reproduction, and on better balanced rations.—D. S. RABAGLIATI.

BOOK REVIEWS

LÖFFLER, W. [Direktor der Med. Univ.-Klinik, Zürich], MORONI, D. L. [Medizinische Universitäts-Klinik, Zürich] & FREI, W. [Ehem. Direktor des Vet.-Path.-Inst. der Universität, Zürich] (1955). *Die Brucellose als Anthroozoonose. (Febris undulans.) Eine zusammenfassende Darstellung für Ärzte und Tierärzte. [Brucellosis as a disease transmissible from animals to man.]* pp. xii+193. Berlin, (Göttingen & Heidelberg): Springer-Verlag. DM 29.60. **2631**

This monograph reviews the literature on brucellosis in animals and man. Its transmission to human beings is dealt with thoroughly and there is an account of the authors' own work on the diagnosis of the disease by a modification of the Coombs' test. There are detailed yet concise accounts of brucella infection in each of the domestic animals; of the bacteriology and serology of brucella; of laboratory diagnosis; of experimental pathology; of epidemiology and prophylaxis. Then follows a description of the symptoms, pathology and treatment of the disease in human beings, with a discussion on its importance as an occupational disease. The many aspects of the disease are dealt with thoroughly and accurately, and the work deserves to become a standard reference book on brucellosis. There are many photographs and photomicrographs of lesions, and a classified bibliography of some 800 references, together with an author index.—R.M.

BONNET, H. [Agrége de Bactériologie à la Faculté de Médecine de Paris] & NÉVOT, A. [Agrége de Bactériologie à la Faculté de Médecine de Paris] (1955). *Travaux pratiques de bactériologie. [Practical bacteriology.]* pp. viii+210. Paris: Masson & Cie. 4th revised edit. Fr. 960. **2632**

This is a convenient pocket book intended as an aid to French-speaking medical students. There are short chapters on microscopy, staining, media, antibiotics, and serological reactions. The greater part of the text is devoted to describing particular bacteria of medical importance. The illustrations are good.—A.S.

FRY, B. A. [Lecturer in Microbiology in the University of Sheffield] (1955). *The nitro-*

gen metabolism of micro-organisms. pp. ix+166. London: Methuen & Co. Ltd.; (New York: John Wiley & Sons, Inc.). 9s. 6d. **2633**

This monograph is based on a series of lectures given in a one-year postgraduate course of microbiology held in the University of Sheffield. An attempt is made to review as comprehensively as possible the nitrogen metabolism of micro-organisms. The book is divided into ten chapters consisting of an introduction, amino-acid catabolism, nitrification and denitrification, the fixation of nitrogen, synthesis of amino-acids, absorption of amino-acids by micro-organisms, peptides and proteins, proteolytic enzymes, nucleotides and nucleic acids, and the mode of action of chemotherapeutic agents.

The main emphasis is on bacteria and fungi since most work has been done with species of bacteria and yeasts. The work is biased towards some aspects of nitrogen metabolism to the detriment of other equally important factors, but on the whole the book is well written and adequately supplied with recent references.

—D. S. PAPWORTH.

SCHRAMM, G. [Professor, Max-Planck-Institut für Virusforschung, Tübingen] (1954). *Die Biochemie der Viren. [The biochemistry of viruses.]* pp. viii+276. Berlin (Göttingen & Heidelberg): Springer-Verlag. DM 36. **2634**

The title "the Biochemistry of Viruses" is a slight understatement, since this book covers a large part of the field of virology. It is divided into general and special parts. In the general part the author describes classification and nomenclature; isolation and demonstration; size and morphology; electro-chemical, chemical and immunological properties; virus-host relationships; mutation of viruses; control of virus diseases. Although he includes an account of the binomial nomenclature for viruses proposed by Holmes [*V.B.* 20, 258], he does not recommend its general adoption.

In the special part the characteristics and biochemical properties of each of the viruses pathogenic for plants, insects, birds and mammals are described. The author has selected the following classification for viruses of warm-

blooded creatures:—spherical viruses less than 50 $m\mu$ in diameter, (foot and mouth disease, rabies, equine encephalitis); spherical viruses more than 50 $m\mu$ in diameter (fowl plague, viruses associated with pneumonia); viruses with irregular shape (Newcastle disease); rectangular viruses (myxomatosis, ectromelia); the psittacosis-lymphogranuloma group; viruses, the morphology of which has not yet been established (Aujeszky's disease, equine infectious anaemia, African horsesickness, swine fever, dog distemper). Pleuropneumonia-like organisms are also briefly described.

References are given at the foot of each page, and there is an author index to facilitate easy reference to them. There are nearly seventy illustrations, including many reproductions of electron microscope photographs. The book is an excellent source of information on viruses in general and viruses pathogenic for animals.

—R.M.

GERMER, W. D. [Oberarzt der Medizin. Klinik und Dozent an der Universität Tübingen] (1954). *Viruserkrankungen des Menschen. Ein Lehrbuch der Klinik, Epidemiologie und Ätiologie der menschlichen Virose.* [*Virus diseases of man.*] pp. viii + 190. Stuttgart: Georg Thieme. DM 30. **2635**

This is a monograph for the medical practitioner on human virus diseases of the respiratory system, exanthematic infections, diseases of the liver, central nervous system, muscles, eyes and skin. Diseases transmissible from animals to man and *vice versa* are not mentioned separately. Each chapter is followed by a list of references. Paper, printing and binding are very good. There are forty-seven illustrations, some of which are in colour—E.G.

ANDREWS, G. C. [Clinical Professor of Dermatology, College of Physicians and Surgeons, Columbia University] (1954). *Diseases of the skin. For practitioners and students.* pp. xi + 877. Philadelphia (& London): W. B. Saunders Co. 4th Edit. 91s. **2636**

In the fourth edition of this work greater emphasis has been placed on the histopathology of the skin, and photomicrographs of skin sections of various diseases have been added. The important role of illustration in this book may be judged from the fact that in its 820 pages of text there are 777 figures, the majority of them reproductions of photographs of high quality. The skin lesions of diseases transmissible from animals to man (glanders, anthrax, foot and mouth disease, pox diseases, cat-scratch fever, ringworm, mange etc.) are adequately described, with the exception of brucellosis, which, in the

opinion of the reviewer, warrants a section of its own.—R.M.

ALTSCHUL, R. [Professor in Histology, University of Saskatchewan] (1954). *Endothelium. Its development, morphology, function, and pathology.* pp. xiv + 157. New York (& London): The Macmillan Co. \$3.50 (24s. 6d.). **2637**

This is a small but comprehensive textbook on the morphology, development, function and pathology of endothelial tissues, designed to serve as an aid to the study of human vascular diseases. It has an extensive bibliography (359 references) and a good subject index.—A.S.

— (1954). *Recent developments in psychosomatic medicine.* [Edited by: WITTKOWER, E. D. & CLEGHORN, R. A.] pp. xvi + 495. London: Sir Isaac Pitman & Sons, Ltd. 50s. **2638**

Recent developments in psychosomatic medicine are described in 25 papers which deal with various aspects of the subject. It is a relatively new field which is rapidly gaining recognition and is becoming organized. One would expect the part played by the mind in the aetiology of disease to be much more restricted in animals, and the lack of subjective information would put the investigator at a great disadvantage. Nevertheless, this book serves as an excellent introduction to the subject, and as a basis for comparison.—R.M.

HIERONYMI, E. (Revised by) (1955). Schmid. *Die Parasitären Krankheiten der Haustiere. Diagnose und Bekämpfung.* [*Schmid's Diagnosis and control of parasitic diseases of livestock.*] pp. viii + 229. Berlin (& Hamburg): Paul Parey. 6th revised edit. DM 26.80. **2639**

This concise, up-to-date textbook, whilst keeping to the layout under the host species of its previous edition [V.B. 20, 3437], has been largely revised. Some chapters have been completely rewritten. Others, like those on the history of parasitology, origin of parasitism, and insectides, have been newly added.

Apart from its value for the student with a sufficient knowledge of German, it is also designed to assist the veterinary practitioner in the diagnosis and control of parasitic diseases.

A valuable feature is the excellent illustrations, numbering 178. Except for a short list of standard works on parasitology at the end of the book, there are no references. The book is well indexed and paper, print and binding are of high quality.—E.G.

- (1955). **Antibiotics annual 1954-1955. Proceedings of the Second Annual Symposium on Antibiotics.** [Edited by: WELCH, H. & MARTI-IBÁÑEZ, F.] pp. ix+1154. New York: Medical Encyclopedia, Inc. \$10.00. **2640**

There are nearly twice as many pages in this edition as in that of 1953/54. It contains 174 original papers on various aspects of the pharmacology and therapeutics of all the antibiotics in current use, and many of the newly discovered substances. The papers were read at the Second Annual Symposium on Antibiotics held at Washington, U.S.A., in October 1954.

The principal papers of veterinary interest deal with the following subjects:—tetracycline in veterinary medicine; antibacterial action of antibiotics; sulphanilamide and nitrofurazone against staphylococci and streptococci from bovine mastitis; carbomycin in the treatment of distemper; concentration of chlortetracycline in the body of dairy calves; effect of heat treatment on streptomycin and chlortetracycline in milk; chemotherapy of experimental air-borne infection of mice with mouse pneumonitis virus; oxytetracycline in medicated feeds; carbomycin as an animal growth stimulant; effect of antibiotics on reproductive performance and antibiotic resistant organisms in the digestive tract of fowls. There is a bibliography to each paper, and there are indexes to the authors and subjects of the papers. This annual publication forms a most useful source of reference to current work.

—R.M.

- WALTER, A. M. [Leiter der Infektionsabteilung und des bakteriologischen Laboratoriums der Medizinischen Universitätsklinik Freiburg i. Br.] & HEILMEYER, L. [Direktor der Medizinischen Universitätsklinik Freiburg i. Br.] (1954). **Antibiotika-Fibel. Indikation und Anwendung der Chemotherapeutika und Antibiotika.** [Chemotherapeutics and antibiotics.] pp. vii+813. Stuttgart: Georg Thieme. DM 79. **2641**

This voluminous monograph intended as a reference book for the medical practitioner consists of two parts. The general part contains chapters on the principles of chemotherapy, mode of action of sulphonamides, penicillin, streptomycin, the tetracycline group, chloramphenicol, antibiotics effective against Gram-positive organisms and those for use against Gram-negative agents of disease and the value and therapeutic use of antibiotic combinations. The special part deals with the clinical aspects and indications of antibiotic therapy in various diseases. References listed after each chapter total about two thousand. Paper, print and cover are of good quality.—E.G.

- (1954). **Connective tissues. Transactions of the Fifth Conference, February 8, 9, and 10, 1954, Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation. Edited by: RAGAN, C.] pp. 222. New York: Josiah Macy, Jr. Foundation. \$4.25. **2642**

This is a report of the final conference in the series devoted to the connective tissues. The book has four divisions: introductory remarks, which cover a wide field; the exchange of materials between blood vessels and lymph; interstitial water and connective tissues; and hormonal effects on connective tissues.

The discussions, which are reported *verbatim*, maintained a high level throughout, and the publishers are to be congratulated on including reproductions of photomicrographs in black-and-white and in colour.

—D. S. PAPWORTH.

- (1954). **Adrenal cortex. Transactions of the Fifth Conference, November 4, 5 and 6, 1953, Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: RALLI, E. P.] pp. 187. New York: Josiah Macy, Jr. Foundation. \$3.75. **2643**

The Josiah Macy Foundation Reports will be familiar to most readers, and this volume is the fifth and final report on the symposia allotted to the adrenal cortex. There are three main sections: The salt and water factor of the adrenal cortex, the metabolism of adrenal steroids, and a discussion on the nature of the hormone or hormones produced.

—D. S. PAPWORTH.

- WILLIAMS, H. (1954). **Don Quixote of the microscope. An interpretation of the Spanish savant Santiago Ramon y Cajal (1852-1934).** pp. 255. London: Jonathan Cape. 15s. **2644**

Dr. Harley Williams has written a discursive chronicle of the life of the great histologist, Santiago Ramon y Cajal. The story is unfolded in a long series of very short chapters, each dealing with a particular episode or stage in his career. There is little scientific matter in this book: in the parts which describe the work of Ramon y Cajal the author has deliberately avoided the use of technical terminology wherever possible. The theme is rather the personality of the man and the story of the circumstances that led him to become the leading exponent of his subject in the world and of those in which he developed his subject as the years wore on. The result is a human document which should have a universal appeal.—F.E.W.

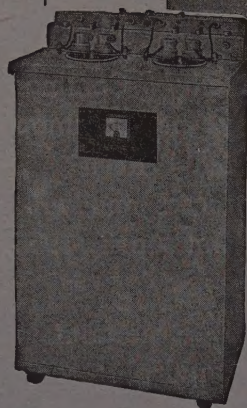
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